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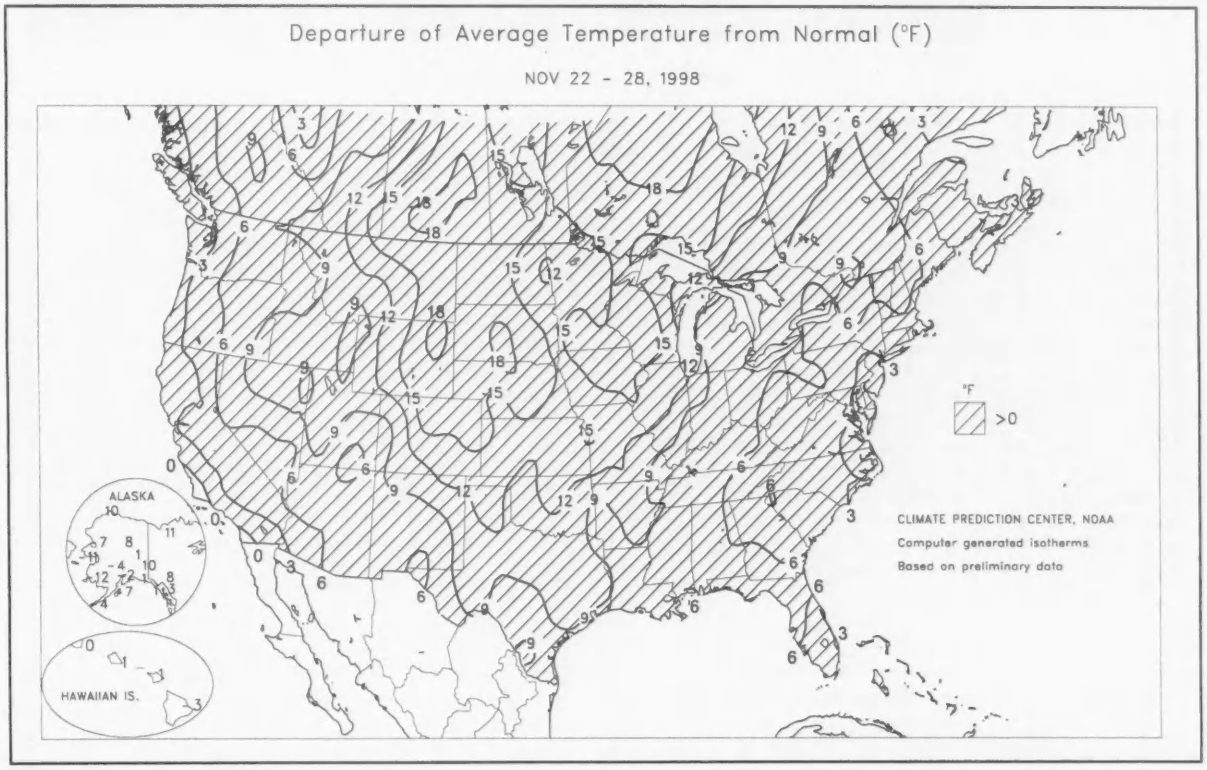
WEEKLY WEATHER AND CROP BULLETIN

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Weather Service

U.S. DEPARTMENT OF AGRICULTURE
National Agricultural Statistics Service
and World Agricultural Outlook Board



HIGHLIGHTS

November 22 - 28, 1998

Wet, windy weather continued in the **Northwest**, but exceptionally mild, mostly dry weather prevailed elsewhere across the Nation. Heavy precipitation caused additional minor flooding **west of the Cascades** through midweek, but rainfall shifted southward thereafter, disrupting already-late cotton harvesting in **California's San Joaquin Valley**. Farther east, weekly temperatures ranged from 10 to 20°F above normal throughout the **Plains** and **western Corn Belt**, promoting final summer crop harvesting and spurring winter wheat development. On the **southern Plains**, however, topsoils turned unfavorably dry

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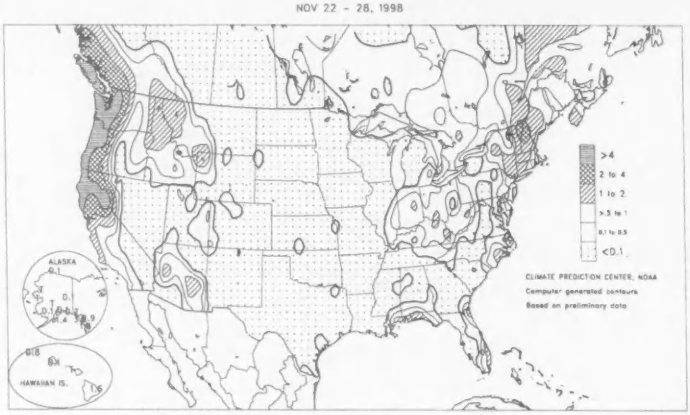
Stormy Pacific: A chain of storms continues to buffet the Pacific Northwest with high winds and heavy precipitation.

(Continued from front cover)
following nearly a month without significant rainfall. Meanwhile, drought persisted in the **Mid-Atlantic region** and parts of the **Southeast**, tempered only by midweek showers.

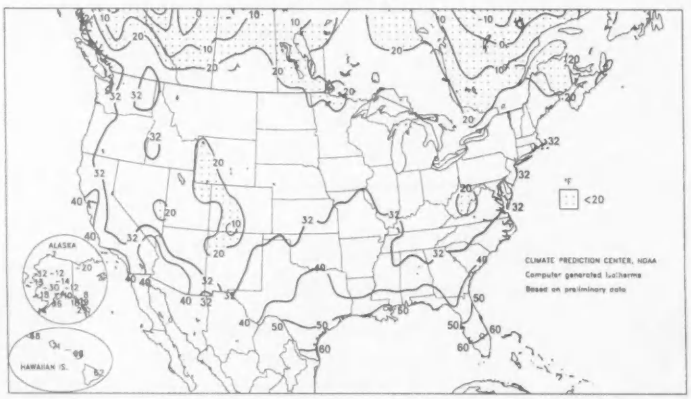
During the week, more than 130 daily-record highs were set or tied nationwide. On Sunday, a surge of warmth onto the **High Plains** pushed highs in **Kansas** to 87°F in **Elkhart** and 85°F in **Liberal**. A day later, warmth quickly expanded into the **East**, where **Blacksburg, VA** registered a daily-record high (69°F) following a low of 21°F. After a brief midweek cool-down, record warmth returned to the **Plains**, **Midwest**, and **East**. Thursday marked the first of four consecutive daily-record highs in **Waterloo, IA** (67, 67, 62, and 69°F). **LaCrosse, WI** netted their first of four records (63, 62, 65, and 63°F) on Friday. In **Chicago, IL**, highs exceeded 60°F on five consecutive days (November 26-30) in late November for the first time on record.

Two powerful storms struck the **Pacific Northwest**, the first on Monday and the other on Wednesday. In **Oregon**, Monday's storm lashed **Cape Blanco** with wind gusts of 86 mph. Away from the ocean, gusts reached 68 mph in **Salem, OR** and 72 mph in **Bellingham, WA**. The latter storm battered **Cape Blanco** with gusts as high as 98 mph. A peak gust to 111 mph was reported in **Cannon Beach, OR**. **Astoria, OR** noted their heaviest 24-hour rainfall on Wednesday (5.56 inches), breaking a record that had stood since January 8-9, 1990. November rainfall records were broken by week's end in **Seattle, WA** (10.97 inches, eclipsing their 1990 standard) and **Astoria** (18.70 inches, eclipsing their 1995 mark).

Total Precipitation (Inches)
NOV 22 - 28, 1998



Extreme Minimum Temperature (°F)
NOV 22 - 28, 1998



A late-week pattern change gave the **Pacific Northwest** a much-needed break from heavy precipitation and delivered rain and mountain snows to **California** and the **Southwest**. In **southern California**, storm-total (November 27-29) rainfall included 1.91 inches in **Julian** and 1.60 inches on **Mt. Laguna**. **Mt. Lemmon**, near **Tucson, AZ**, netted 2.60 inches of precipitation during the same period. By Sunday morning, **Bellemont, AZ** reported a snow depth of 3 inches. Farther east, dry weather returned to the **Northeast** toward week's end following a brief period of precipitation. Rainfall (and melted snow) totals topped 1 inch in parts of **New England** and **eastern New York**, but were much lower across the **Mid-Atlantic States'** drought region.

Sharply colder air overspread **western Alaska** during the week. Departures ranged from -12°F in western areas to +10°F in far northern and eastern locations. On Monday, **Cold Bay** tallied a daily record-tying low of 13°F. Lows in **interior western Alaska** dipped as low as -30°F (on Friday) in **McGrath**.

National Weather Data for Selected Cities

Weather Data for the Week Ending November 28, 1998

Data Provided by Climate Prediction Center (301-763-8000 EXT. 7503) and the Southern Regional Climate Center

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP, °F		PRECIP.	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Sep 1	PCT. NORMAL SINCE Sep 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL	BIRMINGHAM	72	46	76	39	59	9	0.01	-1.11	0.01	6.60	62	60.56	123	87	36	0	0	1	0
	HUNTSVILLE	68	41	73	31	55	8	0.01	-1.25	0.01	6.02	51	38.77	78	98	44	0	1	1	0
	MOBILE	74	54	79	47	64	7	0.74	-0.34	0.59	30.56	242	84.43	145	100	59	0	0	5	1
	MONTGOMERY	73	48	77	37	59	5	0.02	-1.07	0.01	11.16	109	46.47	97	98	46	0	0	2	0
AK	ANCHORAGE	21	11	38	-4	16	-2	0.09	-0.13	0.03	1.48	26	10.01	68	93	72	0	7	3	0
	BARROW	8	1	12	-7	5	10	0.09	0.03	0.01	2.20	172	4.49	107	81	71	0	7	4	0
	FAIRBANKS	4	-8	17	-14	-2	1	0.08	-0.11	0.03	1.72	67	10.12	101	86	75	0	7	4	0
	JUNEAU	37	27	38	19	32	3	0.87	-0.13	0.30	20.44	107	59.24	120	98	79	0	6	5	0
	KODIAK	32	21	41	16	26	-7	1.39	0.01	1.32	33.25	169	101.07	167	94	55	0	7	2	1
	NOME	8	-5	16	-13	2	-11	0.01	-0.21	0.01	6.31	133	23.30	166	82	66	0	7	1	0
AZ	FLAGSTAFF	57	23	63	20	40	6	0.24	-0.25	0.20	9.08	167	26.72	132	77	19	0	7	1	0
	PHOENIX	77	51	81	49	64	5	0.18	0.01	0.18	1.90	90	9.95	150	62	20	0	0	1	0
	TUCSON	80	48	84	44	64	8	0.22	0.05	0.18	1.93	58	13.09	120	49	13	0	0	2	0
	YUMA	77	52	79	46	64	3	0.01	-0.05	0.01	2.27	291	4.39	164	55	21	0	0	1	0
AR	FORT SMITH	71	42	77	35	56	9	0.02	-0.88	0.01	13.41	126	40.42	107	97	45	0	0	2	0
	LITTLE ROCK	69	44	77	35	57	8	0.00	-1.27	0.00	10.33	82	37.08	81	97	55	0	0	0	0
CA	BAKERSFIELD	64	43	73	37	53	1	0.14	-0.03	0.13	1.04	95	12.71	253	91	50	0	0	2	0
	EUREKA	59	47	63	35	53	2	1.88	0.25	1.06	13.69	144	54.75	176	88	86	0	0	8	1
	FRESNO	64	46	69	39	55	4	0.09	-0.27	0.08	0.88	43	16.85	187	90	47	0	0	2	0
	LOS ANGELES	65	52	72	48	58	-1	0.59	0.12	0.46	1.22	53	25.04	245	98	65	0	0	3	0
	REDDING	56	46	57	34	50	2	2.05	0.71	1.15	9.07	114	56.46	206	93	87	0	0	5	2
	SACRAMENTO	61	47	65	40	54	4	1.28	0.59	0.54	3.27	82	26.71	180	98	62	0	0	5	1
	SAN DIEGO	66	53	71	49	59	-1	0.43	0.04	0.33	0.88	45	15.15	164	92	64	0	0	2	0
	SAN FRANCISCO	59	50	65	45	54	1	0.83	0.10	0.47	2.47	61	31.05	190	93	70	0	0	5	0
CO	ALAMOSA	57	16	63	14	36	11	0.00	-0.08	0.00	2.88	145	6.85	97	89	21	0	7	0	0
	CO SPRINGS	64	34	73	28	49	14	0.00	-0.11	0.00	2.02	77	16.20	103	58	13	0	2	0	0
	DENVER	67	35	73	27	51	15	0.00	-0.19	0.00	2.43	79	15.92	108	55	16	0	3	0	0
	GRAND JUNCTION	57	29	60	23	43	7	0.00	-0.14	0.00	3.16	128	8.78	110	72	27	0	6	0	0
	PUEBLO	71	28	79	25	50	13	0.00	-0.11	0.00	2.55	134	11.51	107	78	15	0	6	0	0
CT	BRIDGEPORT	52	39	57	33	45	3	0.68	-0.23	0.68	7.11	73	41.01	108	86	52	0	0	1	1
	HARTFORD	51	35	57	27	43	5	1.18	0.22	1.18	10.71	96	44.64	112	80	46	0	2	1	1
DC	WASHINGTON	59	40	64	35	50	3	0.43	-0.31	0.39	3.37	38	34.22	97	79	34	0	0	2	0
DE	WILMINGTON	56	36	65	30	46	3	0.68	-0.12	0.68	6.00	64	35.66	96	86	39	0	1	1	1
FL	DAYTONA BEACH	78	61	80	50	69	6	0.84	0.23	0.81	9.09	69	38.96	86	95	60	0	0	3	1
	JACKSONVILLE	75	56	78	42	65	6	2.25	1.72	2.01	13.23	110	56.65	117	99	59	0	0	3	1
	KEY WEST	81	73	84	70	77	3	0.04	-0.53	0.04	18.70	144	36.34	97	88	68	0	0	1	0
	MIAMI	81	71	83	68	76	4	0.76	0.29	0.51	26.87	170	66.37	127	94	68	0	0	2	1
	ORLANDO	80	61	83	52	71	5	0.17	-0.38	0.01	7.84	74	44.26	97	99	55	0	0	3	0
	PENSACOLA	73	56	79	46	64	6	0.52	-0.32	0.48	21.33	167	61.60	107	93	57	0	0	4	0
	TALLAHASSEE	73	54	78	39	64	6	0.12	-0.90	0.10	15.56	129	57.24	95	98	56	0	0	3	0
	TAMPA	81	65	84	56	73	7	0.02	-0.43	0.02	9.22	96	54.36	131	97	58	0	0	1	0
	WEST PALM BEACH	79	67	82	61	73	2	0.82	-0.10	0.53	22.48	115	63.71	110	92	61	0	0	6	1
GA	ATHENS	68	46	75	36	57	6	0.08	-0.81	0.00	9.39	94	49.00	108	88	38	0	0	1	0
	ATLANTA	66	47	72	37	57	7	0.03	-0.92	0.03	6.80	66	44.44	96	83	37	0	0	1	0
	AUGUSTA	74	40	78	32	57	4	0.15	-0.46	0.12	9.50	117	46.65	114	99	40	0	1	2	0
	COLUMBUS	71	50	76	41	61	7	0.05	-0.91	0.05	6.85	79	31.76	70	93	40	0	0	1	0
	MACON	72	46	76	35	58	5	0.09	-0.65	0.08	9.17	123	41.91	105	97	39	0	0	2	0
	SAVANNAH	74	49	77	36	61	5	0.18	-0.37	0.09	7.19	81	47.21	102	96	47	0	0	3	0
HI	HILO	76	66	78	62	71	-3	1.81	-1.87	0.89	37.77	124	98.68	83	98	70	0	0	7	1
	HONOLULU	82	73	82	71	77	1	0.08	-0.68	0.05	1.26	22	3.87	21	74	51	0	0	3	0
	KAHULUI	81	70	82	68	75	0	0.01	-0.67	0.01	2.44	62	5.56	32	80	52	0	0	1	0
	LIHUE	79	70	80	68	75	0	0.77	-0.51	0.43	4.47	38	24.20	63	86	63	0	0	5	0
ID	BOISE	53	41	64	36	47	11	0.44	0.06	0.28	3.14	108	15.16	143	80	42	0	0	6	0
	LEWISTON	49	39	54	35	44	5	0.88	0.60	0.30	5.51	197	16.88	161	92	53	0	0	5	0
	POCATELLO	56	32	63	27	43	12	0.88	0.60	0.29	3.96	140	13.26	121	97	44	0	4	5	0
IL	CHICAGO/O'HARE	60	38	67	32	49	14	0.01	-0.68	0.01	9.26	103	36.04	109	79	38	0	1	1	0
	MOLINE	61	35	67	26	48	13	0.00	-0.57	0.00	13.56	146	46.71	127	83	42	0	4	0	0
	PEORIA	62	38	65	30	50	13	0.09	-0.54	0.02	8.00	88	40.56	120	79	38	0	1	1	0
	ROCKFORD	59	33	65	26	46	13	0.04	-0.53	0.00	9.32	102	38.83	114	88	43	0	3	1	0
	SPRINGFIELD	64	37	68	28	50	12	0.00	-0.61	0.00	7.31	88	44.20	137	81	37	0	2	0	0
IN	EVANSVILLE	64	38	69	30	50	7	0.21	-0.70	0.21	6.49	70	40.04	102	94	47	0	2	1	0
	FORT WAYNE	57	33	63	27	45	8	0.53	-0.15	0.53	6.88	89	37.26	118	88	44	0	3	1	1
	INDIANAPOLIS	60	36	67	28	48	9	0.75	-0.05	0.75	10.15	119	48.24	133	85	40	0	2	1	1
	SOUTH BEND	58	36	66	28	47	10	0.02	-0.76	0.02	5.22	53	33.07	93	91	44	0	2	1	0
IA	BURLINGTON	65	40	69	32	52	16	0.00	-0.52	0.00	18.40	201	50.57	149	76	37	0	1	0	0
	CEDAR RAPIDS	60	33	66	26	47	14	0.00	-0.45	0.00	12.76	182	44.91	141	85	42	0	4	0	0
	DES MOINES	61	36	68	28	49	15	0.00	-0.37	0.00	5.64	72	39.96	126	88	40	0	1	0	0
	DUBUQUE	58	35	63	27	47	15	0.00	-0.61	0.00	9.34	94	42.96	119	85	42	0	3	0	0
	SIOUX CITY	62	30	73	25	46	15	0.00	-0.21	0.00	5.71	98	30.93	124	87	38	0	6	0	0
	WATERLOO	61	31	67	23	46	16	0.00	-0.38	0.00	8.25	106	44.52	138	85	37	0	4	0	0
KS	CONCORDIA	63	39	69	32	51	14	0.00	-0.22	0.00	10.39	171	32.87	118	84	46	0	1	0	0
	DODGE CITY	69	37	75	35	53	14	0.00	-0.17	0.00	6.78	171	22.04	108	75	28	0	0	0	0
	GOODLAND	69	32	81	28	51	16	0.00	-0.14	0.00	3.22	103	17.28	96	70	21	0	3	0	0
	TOPEKA	67	38	72	32	53	14	0.00	-0.39	0.00	14.24	164	40.35	120	89	40	0	1	0	0

Based on 1961-90 normals

Weather Data for the Week Ending November 28, 1998

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP, °F		PRECIP.	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Sep 1	PCT. NORMAL SINCE Sep 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	WICHITA	65	41	70	34	53	13	0.00	-0.34	0.00	15.31	213	33.04	118	91	47	0	0	0	0
KY	JACKSON	64	42	70	30	53	8	0.37	-0.67	0.37	6.16	67	46.74	104	72	29	0	1	1	0
	LEXINGTON	60	40	67	34	50	8	0.61	-0.26	0.61	4.43	50	45.87	114	82	42	0	0	1	1
	LOUISVILLE	65	41	70	31	53	9	0.57	-0.34	0.57	6.01	65	45.41	112	93	41	0	1	1	1
	PADUCAH	66	39	71	35	53	8	0.13	-0.96	0.13	9.59	90	51.73	117	90	38	0	0	1	0
LA	BATON ROUGE	76	53	80	45	64	7	0.01	-1.10	0.01	13.82	112	52.92	96	98	60	0	0	1	0
	LAKE CHARLES	77	57	80	48	67	9	0.00	-1.06	0.00	21.05	155	53.11	107	98	65	0	0	0	0
	NEW ORLEANS	75	58	78	56	67	8	0.03	-1.14	0.01	24.33	193	76.91	138	97	59	0	0	1	0
	SHREVEPORT	74	52	79	38	63	10	0.00	-1.05	0.00	17.61	160	43.87	105	99	61	0	0	0	0
ME	CARIBOU	36	26	46	15	30	4	0.53	-0.31	0.32	7.36	75	34.09	103	86	64	0	5	2	0
	PORTLAND	48	32	54	26	40	5	0.70	-0.53	0.70	14.98	127	52.91	134	81	47	0	3	1	1
MD	BALTIMORE	58	32	67	26	45	2	0.64	-0.16	0.59	3.53	37	33.19	89	78	33	0	5	2	1
MA	BOSTON	51	39	59	35	45	3	0.37	-0.65	0.37	9.57	93	51.88	139	85	55	0	0	1	0
	WORCESTER	48	34	58	29	41	5	0.15	-0.89	0.11	7.83	63	44.44	102	80	45	0	2	1	0
MI	ALPENA	47	32	52	28	39	7	0.17	-0.35	0.12	9.45	130	31.33	118	85	54	0	5	2	0
	GRAND RAPIDS	54	34	62	24	44	9	0.09	-0.71	0.09	7.48	74	30.79	93	85	44	0	2	1	0
	HOUGHTON LAKE	47	32	58	25	40	8	0.11	-0.41	0.11	8.35	109	23.07	86	92	59	0	4	1	0
	LANSING	54	31	64	19	42	8	0.04	-0.59	0.04	5.42	67	27.20	97	86	45	0	4	1	0
	MARQUETTE	45	31	53	23	38	13	0.22	-0.41	0.22	8.09	78	37.71	116	83	49	0	3	1	0
	MUSKEGON	51	36	58	24	44	8	0.08	-0.66	0.08	9.19	96	26.50	90	87	55	0	2	1	0
MN	DULUTH	47	30	60	25	39	15	0.21	-0.16	0.20	11.02	137	31.76	111	95	56	0	5	2	0
	INT'L FALLS	41	24	47	13	32	13	0.01	-0.21	0.01	6.30	102	22.30	95	95	66	0	6	1	0
	MINNEAPOLIS	56	29	64	24	43	15	0.00	-0.32	0.00	4.55	71	32.65	120	88	47	0	6	0	0
	ROCHESTER	56	33	62	26	44	17	0.00	-0.33	0.00	6.93	95	31.93	112	88	51	0	4	0	0
	ST. CLOUD	52	27	58	22	39	15	0.03	-0.21	0.03	4.74	72	24.09	91	94	49	0	6	1	0
MS	JACKSON	74	48	78	36	61	8	0.00	-1.24	0.00	7.65	66	45.72	93	99	50	0	0	0	0
	MERIDIAN	74	48	76	35	60	7	0.12	-1.07	0.12	6.79	63	50.43	100	99	47	0	0	1	0
	TUPELO	70	43	74	31	56	7	0.04	-1.22	0.04	6.36	55	43.36	88	97	46	0	1	1	0
MO	COLUMBIA	66	41	72	35	54	14	0.00	-0.66	0.00	13.25	135	43.46	119	82	38	0	0	0	0
	KANSAS CITY	66	42	71	36	54	15	0.00	-0.39	0.00	18.85	189	46.03	129	87	46	0	0	0	0
	SAINT LOUIS	66	41	72	35	54	12	0.03	-0.77	0.03	6.99	79	42.69	125	80	35	0	0	1	0
	SPRINGFIELD	66	38	73	32	52	10	0.00	-0.87	0.00	12.78	109	46.50	117	89	43	0	1	0	0
MT	BILLINGS	51	34	66	29	43	12	0.10	-0.09	0.04	3.11	94	13.86	97	80	37	0	3	3	0
	BUTTE	44	27	55	19	35	12	0.28	0.17	0.13	2.22	91	14.24	122	89	49	0	6	4	0
	GLASGOW	50	32	65	28	41	17	0.00	-0.06	0.00	4.76	255	14.34	136	82	44	0	4	0	0
	GREAT FALLS	48	35	63	30	42	12	0.31	0.14	0.23	2.51	95	16.44	115	74	39	0	2	3	0
	KALISPELL	43	33	52	29	38	10	0.55	0.20	0.22	3.50	105	18.65	127	97	57	0	4	6	0
	MILES CITY	52	33	61	30	42	15	0.09	-0.02	0.00	3.37	126	13.50	101	82	43	0	3	1	0
	MISSOULA	41	31	52	29	36	7	1.27	1.06	0.54	4.63	177	20.64	168	96	67	0	5	7	1
NE	GRAND ISLAND	63	33	73	30	48	15	0.00	-0.22	0.00	4.24	82	25.85	107	84	37	0	3	0	0
	LINCOLN	63	34	69	28	49	14	0.00	-0.26	0.00	8.33	122	34.02	124	89	37	0	4	0	0
	NORFOLK	62	33	73	30	47	16	0.00	-0.20	0.00	6.16	123	34.85	143	83	34	0	5	0	0
	NORTH PLATTE	64	26	73	21	45	14	0.00	-0.14	0.00	4.35	136	22.43	119	89	29	0	6	0	0
	OMAHA	62	36	67	30	49	14	0.00	-0.30	0.00	4.88	66	39.50	137	88	41	0	1	0	0
	SCOTTSBLUFF	64	29	73	22	46	14	0.00	-0.14	0.00	4.44	180	16.46	113	79	24	0	6	0	0
	VALENTINE	68	30	76	24	49	19	0.00	-0.12	0.00	5.50	183	23.98	135	76	20	0	5	0	0
NV	ELY	56	30	63	24	43	12	0.01	-0.13	0.00	2.91	114	11.95	126	69	25	0	4	1	0
	LAS VEGAS	68	46	73	43	57	6	0.08	-0.03	0.08	1.87	210	6.94	188	55	25	0	0	1	0
	RENO	55	36	65	30	46	8	0.45	0.23	0.36	3.45	225	12.15	189	78	26	0	2	3	0
	WINNEMUCCA	54	35	63	24	44	10	0.56	0.34	0.20	4.98	266	15.29	209	83	38	0	1	4	0
NH	CONCORD	48	33	55	29	40	7	1.23	0.38	1.22	7.56	80	34.79	105	86	45	0	4	2	1
NJ	NEWARK	55	38	64	35	46	3	0.43	-0.50	0.43	5.46	53	42.50	106	74	40	0	0	1	0
NM	ALBUQUERQUE	63	34	65	28	48	8	0.00	-0.08	0.00	2.26	99	9.46	114	61	22	0	3	0	0
NY	ALBANY	48	33	57	22	40	5	0.77	0.01	0.71	7.98	90	38.11	115	93	67	0	4	2	1
	BINGHAMTON	47	32	60	27	40	5	0.44	-0.33	0.41	7.17	77	37.59	111	84	50	0	4	3	0
	BUFFALO	50	36	60	28	43	6	0.32	-0.61	0.21	6.06	60	33.20	96	87	49	0	3	3	0
	ROCHESTER	51	34	64	27	42	5	0.17	-0.52	0.15	5.97	73	40.47	139	86	48	0	3	3	0
	SYRACUSE	50	35	67	31	43	6	0.74	-0.13	0.34	7.40	70	35.84	101	83	49	0	3	4	0
NC	ASHEVILLE	63	35	70	24	49	4	0.08	-0.75	0.08	6.08	57	44.89	103	91	31	0	3	1	0
	CHARLOTTE	67	38	74	28	52	3	0.09	-0.67	0.05	7.54	77	37.85	96	87	32	0	2	2	0
	GREENSBORO	65	36	69	30	50	4	0.23	-0.46	0.14	4.57	47	43.04	110	86	33	0	2	2	0
	HATTERAS	64	47	67	42	55	1	0.20	-0.93	0.20	10.26	69	58.05	113	92	55	0	0	1	0
	RALEIGH	67	35	72	30	51	3	0.30	-0.42	0.16	8.83	100	49.28	130	98	35	0	2	2	0
	WILMINGTON	71	43	76	38	57	3	0.24	-0.54	0.08	7.87	74	59.83	119	90	39	0	0	4	0
ND	BISMARCK	48	27	59	22	38	14	0.00	-0.11	0.00	5.54	194	23.54	157	87	58	0	7	0	0
	DICKINSON	53	32	65	26	43	18	0.06	-0.02	0.00	7.62	249	24.48	156	86	45	0	2	2	0
	FARGO	42	25	46	22	34	11	0.02	-0.12	0.02	7.94	182	30.56	163	91	69	0	7	1	0
	GRAND FORKS	39	19	44	15	29	9	0.00	-0.14	0.00	6.80	164	22.35	127	93	70	0	7	0	0
	JAMESTOWN	43	29	51	24	36	13	0.00	-0.11	0.00	5.98	187	21.54	132	87	68	0	6	0	0
	WILLISTON	46	30	55	26	38	16	0.07	-0.04	0.04	5.47	214	17.15	131	89	60	0	6	1	0
OH	AKRON-CANTON	53	33	62	25	43	5	0.62	-0.12	0.62	6.86	81	38.27	114	94	49	0	3	1	1
	CINCINNATI	60	36	68	29	48	7	0.55	-0.28	0.55	5.46	61	47.19	124	91	38	0	2	1	1
	CLEVELAND	55	37	65	29	46	7	0.49	-0.28	0.44	5.11	57	30.86	93	85	47	0	2	1	0
	COLUMBUS	58	35	67	28	47	7	0.89	-0.11	0.84	6.37	78	34.37	98	92	44	0	2	1	1
	DAYTON	58	36	65	27	47	8	0.28	-0.46	0.28	5.89	75	37.15	111	81	38	0	2	1	0
	MANSFIELD	54	34	65	27	44	6	0.42	-0.43	0.42	4.91	55	35.76	98	80	40	0	3	1	0

Based on 1961-90 normals

Weather Data for the Week Ending November 28, 1998

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP, °F		PRECIP.	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL IN., SINCE Sep 1	PCT. NORMAL SINCE Sep 1	TOTAL IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	TOLEDO	56	31	63	27	43	7	0.55	-0.15	0.55	4.33	57	31.63	106	93	47	0	6	1	1
	YOUNGSTOWN	53	34	63	27	44	6	0.43	-0.31	0.40	7.85	87	35.29	103	86	42	0	3	2	0
OK	OKLAHOMA CITY	71	45	74	35	58	12	0.00	-0.39	0.00	13.53	151	33.02	104	91	42	0	0	0	0
	TULSA	70	44	75	35	57	11	0.00	-0.67	0.00	16.60	147	44.14	116	91	41	0	0	0	0
OR	ASTORIA	51	42	53	32	47	1	8.58	6.05	5.41	26.89	150	72.40	131	97	74	0	1	7	4
	BURNS	44	32	50	29	38	8	0.91	0.61	0.30	3.36	135	15.18	173	87	52	0	3	6	0
	EUGENE	52	42	63	36	47	3	3.49	1.34	1.06	12.03	94	39.85	99	95	66	0	0	7	4
	MEDFORD	53	42	60	38	48	6	2.32	1.49	1.02	9.86	181	27.62	181	91	54	0	0	6	2
	PENDLETON	53	42	64	34	47	9	0.47	0.07	0.24	4.04	139	13.08	126	85	52	0	0	6	0
	PORTLAND	52	43	59	34	48	4	4.94	3.55	1.79	13.51	145	38.52	129	95	68	0	0	8	4
	SALEM	52	42	63	34	47	4	4.21	2.59	1.47	12.82	124	41.32	129	96	71	0	0	7	3
PA	ALLENTOWN	54	31	62	25	42	3	0.74	-0.20	0.73	9.00	86	39.19	99	89	45	0	5	2	1
	ERIE	52	38	62	31	45	6	0.30	-0.64	0.16	5.36	45	30.02	80	87	46	0	2	2	0
	MIDDLETOWN	57	34	69	28	46	5	0.60	-0.23	0.49	5.65	58	45.65	123	80	32	0	5	2	0
	PHILADELPHIA	56	39	65	34	47	4	0.55	-0.27	0.55	4.87	53	30.84	82	80	39	0	0	1	1
	PITTSBURGH	56	34	63	27	45	6	0.53	-0.16	0.30	4.96	62	32.50	96	85	35	0	3	3	0
	WILKES-BARRE	51	33	60	29	42	5	0.44	-0.26	0.41	6.45	72	33.93	101	83	46	0	4	3	0
	WILLIAMSPORT	54	31	65	28	42	4	0.20	-0.66	0.18	5.40	53	39.35	105	91	43	0	6	2	0
RI	PROVIDENCE	52	37	58	33	44	4	0.63	-0.44	0.63	9.34	83	51.93	127	89	52	0	0	1	1
SC	BEAUFORT	75	52	79	44	64	7	0.04	-0.55	0.04	7.38	76	46.92	98	97	54	0	0	1	0
	CHARLESTON	74	49	79	40	62	6	0.02	-0.59	0.02	17.06	172	63.56	132	96	40	0	0	1	0
	COLUMBIA	72	42	77	32	57	5	0.04	-0.66	0.03	8.18	87	44.44	96	94	35	0	1	2	0
	GREENVILLE	65	41	74	31	53	5	0.00	-0.86	0.00	9.55	84	47.83	102	84	32	0	1	0	0
SD	ABERDEEN	51	29	56	27	40	15	0.00	-0.11	0.00	8.80	249	28.35	157	92	56	0	6	0	0
	HURON	58	31	67	25	44	17	0.00	-0.13	0.00	6.24	161	24.21	124	88	42	0	5	0	0
	RAPID CITY	62	31	71	24	47	16	0.00	-0.11	0.00	8.04	280	20.90	130	75	29	0	3	0	0
	SIOUX FALLS	57	28	63	24	43	15	0.00	-0.22	0.00	9.69	166	30.92	134	89	42	0	5	0	0
TN	BRISTOL	62	30	67	23	46	2	0.37	-0.36	0.35	4.09	48	38.68	104	93	36	0	4	1	0
	CHATTANOOGA	68	38	73	31	53	5	0.02	-1.15	0.02	5.34	46	47.81	100	97	38	0	1	1	0
	KNOXVILLE	62	37	66	28	50	4	0.64	-0.31	0.64	5.25	56	47.97	113	95	41	0	1	1	1
	MEMPHIS	71	50	76	36	60	11	0.00	-1.32	0.00	6.39	57	48.34	105	88	46	0	0	0	0
	NASHVILLE	69	38	73	27	54	7	0.20	-0.86	0.20	4.35	44	44.26	104	89	30	0	1	1	0
TX	ABILENE	75	50	79	39	63	11	0.00	-0.29	0.00	2.68	38	12.54	54	92	38	0	0	0	0
	AMARILLO	73	38	83	34	56	13	0.00	-0.13	0.00	7.95	198	16.64	87	65	19	0	0	0	0
	AUSTIN	77	58	82	46	67	10	0.01	-0.47	0.01	23.26	259	37.82	126	96	61	0	0	1	0
	BEAUMONT	77	58	80	49	67	9	0.02	-1.14	0.01	21.31	141	54.83	105	98	67	0	0	2	0
	BROWNSVILLE	83	65	85	62	74	7	0.04	-0.26	0.01	15.43	151	19.86	78	99	66	0	0	4	0
	CORPUS CHRISTI	79	64	82	57	72	9	0.06	-0.25	0.05	19.09	190	29.98	104	99	68	0	0	2	0
	DEL RIO	72	58	77	51	65	8	0.02	-0.13	0.01	5.00	84	28.81	164	98	68	0	0	2	0
	EL PASO	72	37	75	30	55	6	0.00	-0.11	0.00	2.81	97	6.11	73	70	31	0	1	0	0
	FORT WORTH	73	52	76	45	62	10	0.00	-0.46	0.00	10.82	119	29.41	93	97	59	0	0	0	0
	GALVESTON	74	63	78	53	68	7	0.04	-0.79	0.02	21.10	177	48.30	125	100	83	0	0	3	0
	HOUSTON	78	58	81	45	68	10	0.01	-0.84	0.01	27.94	220	50.57	119	96	62	0	0	1	0
	LUBBOCK	74	42	81	32	58	12	0.00	-0.13	0.00	3.08	59	12.52	69	76	25	0	1	0	0
	MIDLAND	76	44	79	36	60	10	0.01	-0.10	0.01	1.54	31	4.59	32	93	28	0	0	1	0
	SAN ANGELO	75	47	78	37	61	9	0.01	-0.18	0.01	3.60	53	12.55	64	99	48	0	0	1	0
	SAN ANTONIO	76	57	79	46	66	9	0.05	-0.48	0.04	23.09	255	41.73	142	97	63	0	0	2	0
	VICTORIA	77	60	80	49	69	9	0.05	-0.47	0.05	28.68	252	42.76	121	100	70	0	0	1	0
	WACO	75	54	78	49	65	10	0.02	-0.48	0.01	14.60	159	30.56	102	98	64	0	0	2	0
	WICHITA FALLS	73	47	77	39	60	11	0.00	-0.31	0.00	3.39	42	19.29	70	88	44	0	0	0	0
UT	SALT LAKE CITY	60	37	66	30	49	12	0.08	-0.22	0.03	4.23	107	22.70	154	76	25	0	2	2	0
VT	BURLINGTON	48	35	58	24	41	8	0.22	-0.48	0.20	9.35	103	50.33	158	79	48	0	1	3	0
VA	LYNCHBURG	62	31	69	21	46	2	0.15	-0.57	0.14	4.15	42	44.29	118	86	30	0	4	2	0
	NORFOLK	62	40	68	37	51	1	0.49	-0.18	0.48	5.72	59	49.33	120	90	42	0	0	2	0
	RICHMOND	63	35	69	27	49	3	0.30	-0.42	0.24	5.71	58	41.78	105	85	29	0	2	2	0
	ROANOKE	63	37	71	25	50	5	0.19	-0.52	0.18	3.11	30	42.38	112	86	26	0	3	2	0
	WASH/DULLES	61	30	71	23	46	3	0.37	-0.40	0.33	4.01	42	36.94	98	80	30	0	6	2	0
WA	HANFORD	54	44	65	36	49	–	0.10	–	0.10	1.25	–	5.59	–	78	48	0	0	1	0
	OLYMPIA	48	37	50	30	43	2	5.73	3.71	3.05	17.27	123	43.79	105	100	86	0	1	6	4
	QUILLAYUTE	48	40	52	36	44	2	7.70	4.09	2.57	34.37	118	82.24	93	98	81	0	0	7	6
	SEATTLE-TACOMA	49	42	52	37	45	2	4.67	3.21	2.87	15.27	145	34.46	112	97	73	0	0	6	2
	SPOKANE	46	36	55	33	41	9	1.55	0.99	0.61	4.44	121	14.65	105	91	65	0	0	6	1
	YAKIMA	48	35	55	27	42	6	0.20	-0.08	0.16	0.90	50	7.83	120	94	58	0	3	4	0
WV	BECKLEY	57	31	63	19	44	4	0.60	-0.12	0.31	5.75	84	43.98	117	96	32	0	4	3	0
	CHARLESTON	62	32	68	22	47	3	0.75	-0.10	0.39	6.19	65	45.31	117	89	33	0	5	2	0
	ELKINS	56	23	64	14	40	1	0.65	-0.15	0.45	6.80	88	44.16	107	92	31	0	6	3	0
	HUNTINGTON	62	34	69	22	48	5	0.64	-0.16	0.56	5.52	63	40.90	108	87	37	0	2	2	1
WI	EAU CLAIRE	56	31	67	26	44	17	0.00	-0.31	0.00	4.10	53	29.03	95	90	44	0	4	0	0
	GREEN BAY	54	32	60	25	43	14	0.00	-0.48	0.00	6.77	86	28.46	105	86	51	0	4	0	0
	MADISON	56	35	65	26	47	16	0.00	-0.50	0.00	7.56	101	39.58	137	78	38	0	3	0	0
	MILWAUKEE	56	38	65	28	48	15	0.06	-0.54	0.00	7.14	87	33.35	109	76	45	0	1	1	0
WY	CASPER	57	34	64	29	46	16	0.00	-0.17	0.00	5.90	224	14.45	123	51	23	0	3	0	0
	CHEYENNE	59	35	66	32	47	15	0.00	-0.11	0.00	2.19	87	10.48	75	55	22	0	2	0	0
	LANDER	52	28	58	21	40	13	0.01	-0.16	0.01	6.07	204	17.20	139	70	31	0	6	1	0
	SHERIDAN	59	28	70	20	44	15	0.03	-0.14	0.03	6.35	191	17.40	127	85	33	0	7	1	0

NOTE: These data are preliminary and subject to change. In the past, precipitation totals from a number of stations have been incomplete.

National Agricultural Summary

November 23 - 29, 1998

HIGHLIGHTS

Well-above-normal temperatures in the Great Plains, Corn Belt, Great Lakes region, and lower Mississippi Valley aided winter wheat development. Temperatures also averaged above normal in the Southeast, Rocky Mountains, and along the Pacific and Atlantic coasts. Dry conditions continued to assist late- season harvest efforts and fall tillage operations. However, many fields remained too muddy to resume harvest activities in parts of the northern Plains and upper Mississippi Valley following earlier storms. Flooding and soil erosion continued in areas of the Pacific Northwest due to an unrelenting series of Pacific storms. Precipitation was lighter in the California valleys, allowing harvest activities to proceed with little delay.

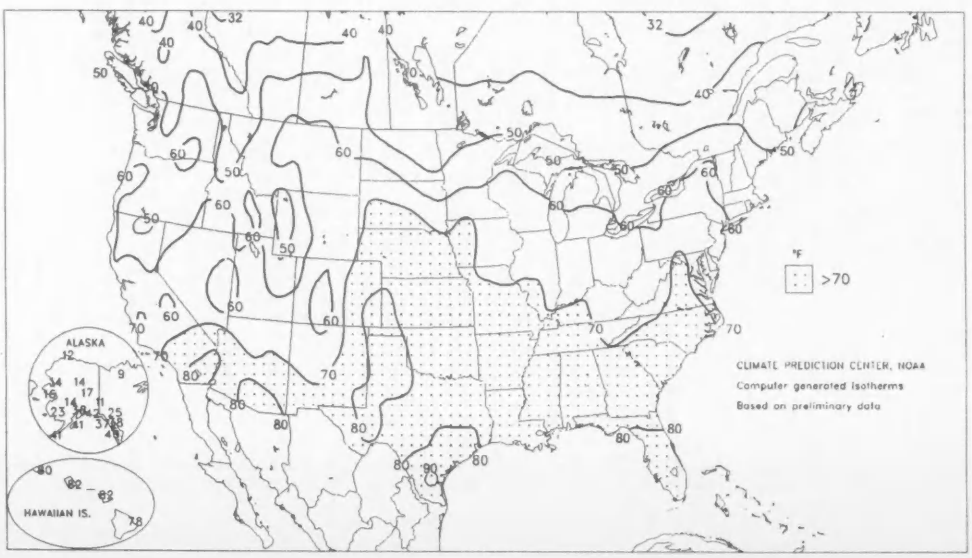
Winter Wheat: Emergence advanced to 94 percent, equal to the 5-year average. Germination and emergence of most late-planted fields in the Corn Belt, northern Plains, and Pacific Northwest was aided by substantially above-normal temperatures. Warm weather also promoted rapid germination in the Southeast and Southwest. Above-normal temperatures promoted root development and vegetative growth in most winter wheat-producing States. Conditions improved the most in the southern Plains, Southeast, northern Rocky Mountains, and parts of the Corn Belt.

Cotton: The Nation's cotton harvest progressed to 90 percent complete, up from 86 percent the previous week and ahead of the 87 percent normally harvested by this date. Dry weather aided the harvest effort in California, but progress remained far behind the normal pace. Favorable weather also aided harvest progress in New Mexico, but growers in Arizona were hindered by scattered showers. Progress remained several days behind normal in both States. In the southern Great Plains and Southeast, the harvest pace was slower, but dry weather favored harvest efforts of the growers who still had cotton to pick.

Sorghum: Harvest advanced to 97 percent complete, slightly behind the 98 percent average. Dry weather aided harvest efforts in the central and southern High Plains. Harvest remained ahead of the normal pace in Colorado and moved ahead of the average in New Mexico, where farmers combined one-fourth of their crop. Progress continued to lag behind the average in Texas. Earlier rains and melting snow kept fields too muddy to resume harvest in parts of South Dakota.

Extreme Maximum Temperature (°F)

NOV 22 - 28, 1998



Crop Progress and Condition

Week Ending November 29, 1998

Winter Wheat Percent Emerged

	Nov 29 1998	Prev Week	Prev Year	5-Yr Avg
AR	89	83	77	83
CA	30	20	33	30
CO	99	99	100	100
GA	37	18	25	36
ID	97	96	95	95
IL	100	98	100	98
IN	99	96	99	99
KS	98	97	98	98
MI	100	100	100	99
MO	95	86	99	90
MT	95	95	94	93
NE	100	100	100	100
NC	70	65	75	68
OH	100	100	99	99
OK	91	89	93	95
OR	100	95	89	93
SD	100	100	100	99
TX	89	85	92	90
WA	100	100	100	97
ALL	94	92	94	94

These 19 States planted 91% of last year's winter wheat acreage.

Cotton Percent Harvested

	Nov 29 1998	Prev Week	Prev Year	5-Yr Avg
AL	99	97	89	93
AZ	83	81	91	90
AR	100	100	97	98
CA	70	60	98	96
GA	85	82	73	84
LA	100	100	100	100
MS	100	100	99	99
MO	99	96	97	97
NM	74	61	89	84
NC	98	95	79	87
OK	87	84	86	75
SC	97	91	84	87
TN	99	99	95	97
TX	87	83	83	79
ALL	90	86	87	87

These 14 States harvested 98% of last year's cotton acreage.

Sorghum Percent Harvested

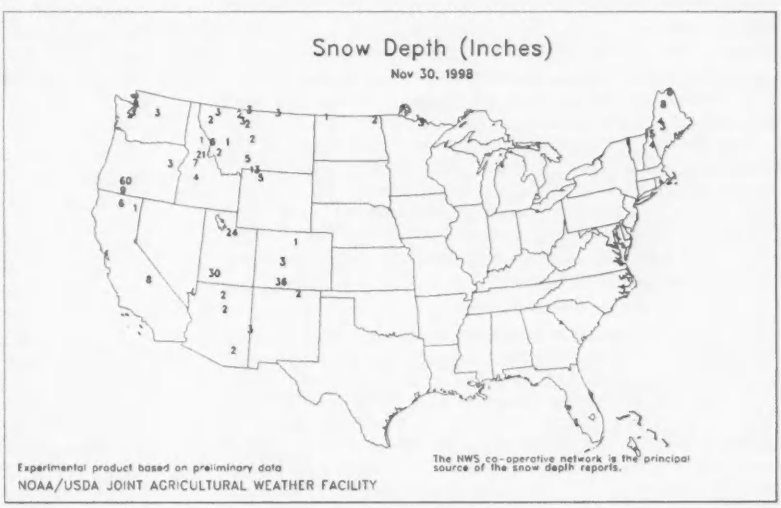
	Nov 29 1998	Prev Week	Prev Year	5-Yr Avg
AR	100	100	100	100
CO	93	80	63	88
IL	100	98	100	99
KS	99	96	97	98
LA	100	100	100	100
MS	100	100	100	100
MO	99	95	99	97
NE	99	98	99	99
NM	97	72	100	91
OK	96	91	85	88
SD	90	89	98	99
TX	94	92	98	99
ALL	97	94	97	98

These 12 States harvested 99% of last year's sorghum acreage.

Winter Wheat Crop Condition by Percent

	VP	P	F	G	EX
AR	0	1	30	50	19
CA	0	0	10	50	40
CO	0	1	11	54	34
GA	1	15	43	40	1
ID	0	0	4	84	12
IL	0	5	18	58	19
IN	0	3	19	62	16
KS	1	4	22	56	17
MI	1	4	33	52	10
MO	0	4	34	59	3
MT	0	1	33	65	1
NE	0	1	19	60	20
NC	1	3	23	58	15
OH	0	3	21	56	20
OK	0	1	14	76	9
OR	0	3	23	74	0
SD	0	0	14	60	26
TX	1	10	43	38	8
WA	0	13	47	40	0
ALL	0	4	24	58	14
Prev Wk	0	5	25	59	11
Prev Yr	0	3	24	65	8

VP - Very Poor; P - Poor; F - Fair;
G - Good; EX - Excellent


Snow Depth (Inches)
Nov 30, 1998
Experimental product based on preliminary data
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY
The NWS co-operative network is the principal source of the snow depth reports.

State Agricultural Summaries

Note: The weekly State Agricultural Summaries will be discontinued for the winter after this issue. The December monthly summary will be published on January 5, 1999; the January summary on February 2; the February summary on March 2; and the March summary on March 30. The first weekly narrative for next spring will be published on April 6, 1999.

These summaries, issued weekly through the summer growing season, provide brief descriptions of crop and weather conditions important on a national scale. More detailed data are available in Weather and Crop Bulletins published each Monday by NASS State Statistical Offices in cooperation with the National Weather Service. The crop weather reports are also available on the Internet through the NASS Home Page on the World Wide Web at http://www.usda.gov/nass/ or from JAWF at http://www.usda.gov/oce/waob/jawf.

ALABAMA: Dry weather continues to cover the State. Topsoil moisture short to very short. Cotton harvested 99%, 89% 1997, 93% avg.

ARIZONA: Cotton harvest slowed last week, but it is still progressing at a normal pace. Alfalfa harvest activity was reported as 63% not being harvested, 13% light, 18% moderate, 6% active. Alfalfa condition was only slightly changed from the previous week. Condition was reported as 2% poor, 9% fair, 83% good, 6% excellent. Sheeping off increased slightly. Small grains planting was very slow last week. As of November 29, 19% of the durum wheat, 38% of other wheat, 18% of the barley, 36% of the other small grains had been planted. Range, pasture feed 8% poor, 33% fair, 45% good, 14% excellent. Last week, central areas growers shipped broccoli, cabbage, cantaloupes, carrots, cauliflower, green onions, head lettuce, honeydew, mixed greens, parsley, spinach, turnips, a light volume of beets, endive, escarole, napa. Eastern producers shipped apples, chile peppers. Western producers shipped broccoli, cantaloupes, cauliflower, celery, escarole, honeydews, kale, parsley, spinach, light volume of bok choy, cilantro, endive, flowering kale. Lettuce shipments included Boston, head, leaf, romaine, specialty leaf, spring mix. Central areas groves shipped fairchild tangerines, grapefruit, lemons, navel oranges, while western citrus groves harvested fairchild tangerines, lemons, navel oranges last week.

ARKANSAS: Days suitable for fieldwork 5.7. Soil moisture 1% very short, 14% short, 79% adequate, 6% surplus. Temperatures were above normal, and precipitation was below normal for the week. Main farming activities included finishing up the soybean harvest and wrapping up winter wheat planting. Other farm activities included applying herbicides to wheat, selecting crop varieties for next year, equipment clean up and maintenance, ground preparation activities for next spring. Cattle producers continued to feed hay, market cattle, wean calves from their herds. Cattle were given vaccinations, were reported in good condition statewide.

CALIFORNIA: Fieldwork progressed normally until late-week rainfall halted activity over most of the State. Seeding of small grains, winter forages, new alfalfa continued in the central, coastal valleys and was just getting started in the Imperial Valley. Greenchopping of winter forage began on the earliest planted fields. Cotton harvest was limited to afternoon hours in the San Joaquin Valley, due to wet, foggy conditions. Harvest progress remained behind normal. Some second picking was underway in Fresno County. Plowdown of harvested cotton fields was virtually halted by the wet soils. Dry beans, corn for grain, silage were harvested where conditions permitted. New crop sugarbeets showed good growth in most areas; growers continued to place mylar streamers in fields for bird damage prevention. Imperial Valley alfalfa fields were treated for grasses, broadleaf weeds. Most alfalfa hay fields in the San Joaquin, Sacramento Valleys had entered dormancy for the winter. Growers of almonds, walnuts, stone fruits were irrigating, fertilizing, pruning. Picking of San Joaquin Valley grapes for fresh consumption continued. Emperor, Christmas rose, crimson seedless were the major varieties being picked. Fuji, Granny Smith apple picking was still active. Kiwifruit, persimmon harvests continued. Navel orange picking gathered momentum as size, maturity improved. Lemon, satsuma harvests continued. Lemon sizes were small, picking has been limited. Lettuce harvesting continued throughout the producing areas. Fall broccoli, cauliflower harvests continued in the San Joaquin, Imperial Valleys. Additional vegetable crops harvested included green beans, cabbage, mustard, turnips, peas, spinach, sweet potatoes, beets. Garlic, carrots, red onion, potato fields were planted in central, southern counties. Spring broccoli, cabbage were planted there as well. Rangeland forage was in fair to good condition across most of the State. Foothill pastures were greening rapidly following recent rains, warm afternoon temperatures. Most stocker cattle were on winter pastures. Some supplemental feeding continued in areas where stocker cattle remained in feedlots or hay lots. Sheep continued to graze alfalfa fields in the Fresno County area.

COLORADO: Continued above-normal temperatures and limited moisture prevailed through most of the week. Harvest of corn for grain was virtually complete and more than 90% sorghum grain has been harvested. Some western areas received snow over the weekend, but moisture predictions for eastern areas did not materialize.

DELAWARE: Days suitable for fieldwork 6.0. Topsoil moisture 10% very short, 55% short, 35% adequate. Subsoil moisture 5% very short, 60% short, 35% adequate. Wheat 14% fair, 80% good, 6% excellent; 95% planted, 84% 1997, 93% avg. Soybeans 90% harvested, 68% 1997, 85% avg. Pasture feed 5% poor, 35% fair, 60% good. Activities: Corn harvesting has been completed, soybean harvesting has a little ways to go, some wheat fields have yet to be sown.

FLORIDA: Topsoil moisture throughout Panhandle, northern Peninsula short to adequate, areas very short. Southern Peninsula moisture adequate to surplus. Winter wheat for grain being planted. Winter wheat stand poor, some places, because of dry soil. Haying virtually complete. Cotton harvest active. Sugarcane harvest, planting active. One-hundred percent peanut acreage for nuts harvested. Major vegetables shipped: snap beans, sweet corn, cucumbers, eggplant, endive, escarole, lettuce, okra, parsley, peppers, pickles, radishes, squash, tomatoes, watermelons. Warm weather first of week, then cooler all citrus areas. Rain in southern counties Monday, rest of State mostly dry, some irrigation. Fresh fruit harvest increasing. Most processing plants open. Caretakers cutting cover crops, few sprays, fertilizations, dead tree removal, resetting continues. Pasture feed poor 10%, fair 45%, good 50%. Cattle poor 5%, fair 40%, good 55%. Ranchers in Panhandle, north counties planting small grains for winter forage where soil not too dry. Early-planted winter grains, clover coming out. Permanent pastures holding up well. Hay supplies short. Central, pasture condition declined due to dry soil conditions, cooler weather. Southwest; normal winter die back of grass showing. Some low-lying areas still had standing water. Statewide, condition of cattle, calves mostly fair to good.

GEORGIA: Days suitable for fieldwork 6.2. Soil moisture 15% very short, 50% short, 34% adequate, 1% surplus. Cotton 10% very poor, 23% poor, 51% fair, 14% good, 2% excellent. Rye 87% planted, 92% 1997, 93% avg. Soybeans 23% very poor, 19% poor, 45% fair, 12%

good, 1% excellent; 85% harvested, 66% 1997, 74% avg. Other small grains 80% planted, 84% 1997, 85% avg. Onions 4% very poor, 25% poor, 13% fair, 58% good; 50% transplanted, 52% 1997, 50% avg. Pecans 18% very poor, 35% poor, 34% fair, 11% good, 2% excellent; 76% harvested, 67% 1997, 69% avg. Pasture feed 5% very poor, 22% poor, 45% fair, 27% good, 1% excellent. Unusually dry weather hampered the planting of small grains in some counties, but hastened harvest for many crops. Cotton remained ahead of last year and the 5-year average, condition decreased. Pecan condition decreased with harvest continuing ahead of 1997, average. Wheat planting surged ahead of the average, with improved condition, while rye, other small grains continued to lag behind. Onion transplanting caught up with the 5-year average, conditions worsened. Other activities included conducting soil test for the following year, mowing cotton stalks, equipment maintenance.

HAWAII: Variable weather was fair for agriculture. Overcast skies, isolated showers hampered crop progress in windward areas. Leeward areas sunnier with occasional showers. Gusty trade winds raked State over weekend. Banana orchards in fair to good condition. Harvesting steady. Heavy leaf shredding anticipated from the gusty winds. Papaya orchard conditions varied widely from poor to good. Disease remains serious problem in parts of Hawaii island. Cool weather, overcast skies expected to slow fruit development. Spraying increased due to rainy weather. Head cabbage plantings were in mostly good condition. Crop development slowed due to change in seasons, overall harvesting will be steady. Coffee harvesting expected to be nearly complete on Kauai, Molokai by the end of the year.

IDAHO: Days suitable for fieldwork 2.9. Topsoil 5% surplus, 80% adequate, 15% short. Corn harvested for grain 77%, 1997 88%, avg. 88%. Activities: Fall ground preparation, hauling, marketing crops, wrapping up fall harvest, finishing livestock weaning, pregnancy testing, caring for livestock.

ILLINOIS: Days suitable for fieldwork 6.3. Topsoil moisture 1% very short, 8% short, 84% adequate, 7% surplus. Farmers continued to apply anhydrous, lime to their crop land. The warm weather has pushed the development of the winter wheat crop, increasing concern of winter kill this year. Farmers are also busy finishing fall tillage, hauling grain before storing their equipment for the winter season.

INDIANA: Days suitable for fieldwork 6.1. Topsoil moisture 4% very short, 22% short, 68% adequate, 6% surplus. Subsoil moisture 6% very short, 30% short, 63% adequate, 1% surplus. Mild weather has resulted in very few livestock problems, as well as reduced feed requirements for cattle. Winter wheat crop has also benefited from the warm weather, with the majority in very good condition. Activities: Fall tillage, hauling manure, applying fertilizer, lime, caring for livestock.

IOWA: Days suitable for fieldwork 6.9. Another week of beautiful weather allowed wet areas to dry out, wrap up harvest, fall fieldwork. There were more fertilizer applications, tillage than normal this fall. Corn acreage harvested 99%, 100% 1997, 99% avg. Winter wheat planted 99%, 100% 1997, 100% avg. Completion of 1999 row crop fall tillage 65%; fall fertilizer applied 60%. Grain movement rated 21% none, 47% light, 29% moderate, 3% heavy. Availability of hay, roughage supplies 3% short, 86% adequate, 11% surplus; quality of hay, roughage supplies 6% poor, 46% fair, 48% good. Use of stubble fields for grazing 19% none, 20% light, 40% moderate, 21% extensive. Livestock are in good condition, many cattle are still in the fields grazing on cornstalks. There have been several reports of hog producers going out of business.

KANSAS: Days suitable for fieldwork 6.2. Topsoil moisture 2% short, 89% adequate, 9% surplus. Subsoil moisture 4% short, 90% adequate, 6% surplus. Fall harvest is virtually complete. Soybeans harvested 98%, 99% 1997, 98% avg. Sunflowers harvested 98%, 99% 1997. Pasture feed 3% very poor, 5% poor, 29% fair, 57% good, 6% excellent. Stock water supplies 3% short, 90% adequate, 7% surplus. Producers were weaning calves, moving cattle to crop residue.

KENTUCKY: Most days suitable for fieldwork. Topsoil, subsoil moisture remains generally adequate to short statewide. Crop harvests virtually complete. Midweek rain raised humidity levels making conditions good for burley tobacco stripping. Burley markets opened last week. State gross sales 63.5 million pounds, compared with 60.0 million pounds for same period in 1997. Average price $190.52 per hundredweight versus $190.46 same period 1997. Strong demand with only 3.3% of gross sales going to Burley Co-Op pool. Fall seeded small grains generally good condition. Limited late-season feed potential from pastures, most producers supplemental feeding livestock.

LOUISIANA: Days suitable for fieldwork 4.9. Soil moisture 1% very short, 2% short, 77% adequate, 20% surplus. Cotton: Pecans 76% harvested, 67% 1997, 62% avg. Sugarcane 59% harvested, 57% 1997, 64% avg. Harvest continued. Sweet potatoes harvested, 95% 1997, 96% avg. Harvest was completed. Wheat 2% poor, 15% fair, 79% good, 4% excellent; 98% planted, 87% 1997, 87% avg.; 92% emerged, 77% 1997, 76% avg. Livestock 3% very poor, 7% poor, 40% fair, 48% good, 2% excellent. Vegetables 1% very poor, 13% poor, 30% fair, 52% good, 4% excellent. Pasture feed 4% very poor, 19% poor, 37% fair, 39% good, 1% excellent.

MARYLAND: Days suitable for fieldwork 6.3. Topsoil moisture 35% very short, 45% short, 20% adequate. Subsoil moisture 40% very short, 50% short, 10% adequate. Pastures 30% very poor, 35% poor, 20% fair, 15% good. Activities: Soybean harvesting completed for State, winter wheat seeding completed, very dry in most of State.

MICHIGAN: Days suitable for fieldwork 6.0. Late corn harvest continued as very mild conditions carried over from the previous week. Fall tillage made good progress.

MINNESOTA: Mild weather occurred throughout the State during the week. The statewide weekly average temperature was nearly 17 degrees F above normal. Very little precipitation, if any, was received last week.

MISSISSIPPI: Days suitable for fieldwork 5.7. Soil moisture 9% very short, 19% short, 71% adequate, 1% surplus. Cotton 100% harvested, 99% 1997, 99% avg. Soybeans 100% harvested, 97% 1997, 97% avg. Wheat 100% planted, 94% 1997, 97% avg.; 97% emerged, 88% 1997, 90% avg.; 1% very poor, 2% poor, 47% fair, 47% good, 3% excellent. Cattle 1% very poor, 7% poor, 31% fair, 53% good, 8% excellent. Activities: Winter wheat, cattle conditions improved slightly during the past week.

MISSOURI: Warm dry weather for most of the week enabled farmers to virtually complete harvesting of row crops. Precipitation averaged 0.22 in., ranging from virtually none in southern half of State to 0.45 in. in northeast district. Temperatures, moisture have been favorable for late growth of winter wheat, pastures.

MONTANA: Days suitable for fieldwork 2.60. Topsoil moisture 5% very short, 16% short, 68% adequate, 11% excellent. Subsoil moisture 6% very short, 37% short, 55% adequate, 2% surplus. Most areas of the State received varying amounts of snow last week. Recent moisture has been welcomed by winter wheat producers as they have indicated that their crops are doing well. However, some wind damage was reported to young immature winter wheat that is not covered by snow. Winter wheat protectiveness of snow cover 73% very poor, 23% poor, 4% fair. Wind damage to winter wheat 44% none, 38% light, 11% moderate, 7% heavy. Livestock are reported to be in good condition as feed supplies are adequate. Therefore, producers are giving

supplemental feed to livestock for 53% of the cattle, calves; 47% for sheep, lambs. Grazing for livestock 90% is open.

NEBRASKA: Days suitable for fieldwork 6.9. Topsoil moisture 5% short, 94% adequate, 1% surplus. Subsoil moisture 2% very short, 11% short, 86% adequate, 1% surplus. Corn harvest 97%, 98% 1997, 98% avg. Soybean harvest 99%, 100% 1997, 100% avg. Sorghum harvest 99%, 99% 1997, 99% avg. Wheat 1% poor, 19% fair, 60% good, 20% excellent. Producer activities; recordkeeping, fencing, and livestock care.

NEVADA: Warm, windy weather predominated. Light precipitation fell in the south, a limited amount of additional snow fell in northern mountains. Temperatures averaged well above normal statewide. Sod harvest continued south. Row crop harvests complete. Haying continued extreme south. Pasture, range condition good. Livestock working, movement to winter ranges continued. Open cows, off weight cattle marketed. Main farm, ranch activities: Moving, vaccinating, testing cattle, haying, equipment maintenance.

NEW ENGLAND: Days suitable for fieldwork 5.3. Topsoil moisture 3% short, 55% adequate, 42% surplus.

NEW JERSEY: Days suitable for fieldwork 7. Above-normal temperatures have allowed southern area farmers to continue harvesting fall vegetables (beets, cabbage, endive, escarole, leeks, herbs, parsley, spinach, turnips, and winter squash). Harvesting of corn for grain, soybeans is virtually complete. Limited number of farmers reported planting winter wheat for cover. Pasture feed fair condition.

NEW MEXICO: Days suitable for fieldwork 6.4. Topsoil moisture improved again, 8% very short, 29% short, 62% adequate, 1% surplus. Warm, dry weather during the first part of last week provided excellent conditions for harvest. Rain showers toward the end of the week slowed harvest, especially in the southwest. Across the State, producers continued harvesting sorghum, chile, cotton, pecans. Sorghum harvest was winding down last week, with 97% harvested. Nearly three-fourths of the cotton crop was picked. This was far behind the 5-year average and the 89 percent harvested in 1997 at this time. Pecan harvest continued, 27% harvested, 7% 1997; 2% very poor, 5% poor, 25% fair, 52% good and 16% excellent. Red chile 64% crop was in, keeping the crop's progress well behind the 86% harvested at this time 1997; 34% fair, 58% good, 8% excellent. Cattle, sheep ranchers were almost finished moving their livestock to market. Both remained in fair to good condition.

NEW YORK: Cooler, windy weather hindered outside activities. Potato, onion, apple growers continued grading, packing, moving crops to market. Wine making very active, cider making slowed. Turkey producers very busy slaughtering birds for holiday. Farmers across the State took time off for Thanksgiving. Many also spent time hunting.

NORTH CAROLINA: Days suitable for fieldwork 6. Soil moisture remains a concern in most areas, 15% very short, 40% short, 44% adequate, 1% surplus. Warm, dry week. Weather conditions have been conducive for continued progress in late-season crop harvests. Additionally, warm weather and spotty rains have benefited small grain emergence. Pasture conditions continue to deteriorate. As the crop season wraps up, soybean harvesting and small grain seeding were the major activities for the week. Other activities included: Sorghum harvesting; tending livestock, and cutting, shipping Christmas trees.

NORTH DAKOTA: Warm weather throughout the week aided the producers with finishing all outside work. Sugar beets on outside piles began to show damage due to warm temperatures. Freezing temperatures are needed within the week to save some of the sugar beet crop. Some were still weaning calves, vaccinating livestock. Hay crop was more plentiful than expected in early months. Producers were working on equipment, preparing for next season.

OHIO: Days suitable for fieldwork 6.0. Topsoil moisture 3% very short, 25% short, 69% adequate, 3% surplus. Winter wheat 3% poor, 21% fair, 56% good, 20% excellent. Winter wheat 100% emerged. Activities: Fall plowing, chiseling; harvest; spreading lime, fertilizer, manure; equipment repair; winter storage preparations; cutting firewood; harvesting, selling Christmas trees; stripping tobacco; weaning calves.

OKLAHOMA: Days suitable for fieldwork 6.3. Topsoil moisture 8% short, 90% adequate, 2% surplus. Subsoil moisture 3% very short, 7% short, 89% adequate, 1% surplus. Heavy showers across State will improve growing conditions for wheat, other forage crops. Wheat 16% grazed, 21% 1997, 23% avg. Oats 89% up-to-stand, 81% 1997, 77% avg.; 5% grazed, 12% 1997, 10% avg. Soybeans 88% harvested, 82% 1997, 89% avg. Peanuts 97% harvested, 99% 1997, 99% avg.; 87% combined, 98% 1997, 95% avg. Alfalfa hay 5% poor, 41% fair, 50% good, 4% excellent; 95% 4th cutting, 100% 1997, 100% avg.; 51% 5th cutting, 88% 1997, 89% avg. Other hay 78% 2nd cutting, 98% 1997, 100% avg. Livestock 4% poor, 20% fair, 74% good, 2% excellent. Pasture feed, range 1% very poor, 18% poor, 37% fair, 43% good, 1% excellent. Cattle marketings average.

OREGON: Activities: Harvest, fall fieldwork completed. Fall nursery digging, container movement continued. Greenhouses busy with winter plants, preparing for early spring flowers. Christmas tree bailing underway, sales ongoing. Domestic Christmas tree sale in full swing. Rain has slowed farm activities. South coast cranberry growers resanding, pruning, installing drain lines.

PENNSYLVANIA: Days suitable for fieldwork 5.5. Soil moisture 41% very short, 43% short, 16% adequate. Ensilage corn harvested 100% harvested, 100% 1997, 100% avg. Soybeans harvested 96% complete, 92% 1997, 91% avg. Fall plowing 90% complete, 90% 1997, 96% avg. Barley emerged 100% complete, 99% 1997. Alfalfa 4th cutting 99% complete, 95% 1997, 96% avg. Apple harvest 100% complete, 100% 1997, 100% avg. Activities: Fall plowing; harvesting corn, soybeans; seeding cover crops; machinery maintenance; fixing fences; spreading lime, manure; chopping, discing, baling corn stalks; marketing corn, fall vegetables, fruit; taking soil samples; caring for livestock.

SOUTH CAROLINA: Days suitable for fieldwork 6.1. Soil moisture 18% very short, 55% short, 27% adequate. Barley 94% emerged, 99% 1997, 81% avg.; 65% fair, 35% good. Livestock 6% poor, 34% fair, 57% good, 3% excellent. Oats 90% planted, 94% 1997, 88% avg.; 79% emerged, 88% 1997, 81% avg.; 2% very poor, 10% poor, 44% fair, 44% good. Pasture feed 7% very poor, 18% poor, 43% fair, 31% good, 1% excellent. Peanuts 100% harvested, 98% 1997, 98% avg. Pecans 68% harvested, 67% 1997, 58% avg.; 16% poor, 52% fair, 31% good, 1% excellent. Rye 93% planted, 96% 1997, 85% avg.; 74% emerged, 88% 1997, 75% avg.; 5% very poor, 19% poor, 46% fair, 30% good. Sorghum 100% harvested, 99% 1997. Winter grazings 94% planted, 98% 1997, 93% avg.; 84% emerged, 90% 1997, 87% avg.; 8% very poor, 15% poor, 39% fair, 37% good, 1% excellent. Winter wheat 56% planted, 59% 1997, 60% avg.; 42% emerged, 39% 1997, 42% avg.; 2% very poor, 17% poor, 47% fair, 34% good.

SOUTH DAKOTA: Days suitable for fieldwork 3.9. Topsoil moisture 1% short, 68% adequate, 31% surplus. Subsoil moisture 70% adequate, 30% surplus. Sunshine, warm temperatures melted the remaining snow, leaving behind muddy fields, making fieldwork difficult. Harvest continued to made little progress this week due to the poor field conditions. Corn 91% harvested, 99% 1997, 97% avg. Sunflower 96% harvested, 100% 1997, 100% avg. Winter rye 24% fair, 53% good, 23% excellent. Winter wheat, winter rye remain in good condition. Livestock remain in good to excellent condition. Livestock 11% fair,

67% good, 22% excellent. Stockwater 2% short, 76% adequate, 22% surplus.

TENNESSEE: Days suitable for fieldwork 6.0. Topsoil moisture 5% very short, 30% short, 65% adequate. Subsoil moisture 5% very short, 30% short, 65% adequate. Burley 80% stripped, 71% 1997, 83% avg. Winter wheat 98% seeded, 94% 1997, 93% avg.; winter wheat 88% emerged; 6% poor, 25% fair, 57% good, 12% excellent. Market preparations for burley tobacco slowed down, compared with the previous week due to continued dry weather. Late-wheat seeds took place last week as a result of unseasonably mild weather conditions.

TEXAS: Mild, open conditions dominated weather across State during week. Mornings foggy, damp but cleared by mid-day allowing harvest operations to make good progress in plains, north central areas. Pastures showed increased growth, with unseasonably warm temperatures most week. Additional haying activity occurred some areas. Livestock conditions remained good across State.

Crops: Small Grains: Recent rains, unseasonably warm weather allowed good progress, development most areas. Some late planting took place as fields dried. Cotton: Favorable harvest conditions allowed producers to make good progress plains, north central areas. Harvest also moved ahead in Trans-Pecos, western parts Hill Country in afternoons. Grain sorghum: In plains harvest progress good all week, was winding down many fields by late week. Peanuts: Good harvest progress occurred most areas, was nearing completion in the plains. Soybeans: Harvest nearing completion in the plains as progress good during week.

Commercial Vegetables, Fruit and pecans: Rio Grande Valley, land preparations, some planting occurred as fields dried out. San Antonio-Winter Garden, cabbage, spinach harvest resumed during week. Trans Pecos, chili pepper harvest continued. Pecans: Harvest moved ahead slowly most areas during week. Many pecan bottoms remained too wet for much harvest activity. Damage reports of losses due flooding, squirrels, crows continued.

Range and Livestock: Producers many areas busy with hay cutting, baling under open conditions. Ranges, pastures continued improve. Winter grasses have come out, warmer weather brought on new growth of warm season grasses. Livestock conditions remained good in most areas. Wheat, oats providing some grazing, were improving in most areas.

UTAH: Days suitable for fieldwork 6.2. Topsoil moisture 100% adequate. Subsoil moisture 75% adequate, 25% surplus. Harvest season is virtually over for this crop year, except for corn for grain, which is 91% harvested. Major farming activities were moving cattle, sheep to winter range, fall field preparation, finishing corn harvest. Weather was good most of the week for farmwork.

VIRGINIA: Days suitable for fieldwork 6.4. Topsoil moisture 47% very short, 42% short, 11% adequate. Subsoil moisture 50% very short, 40% short, 10% adequate. Cotton 100% harvested, 84% 1997, 90% avg. Soybeans 84% harvested, 74% 1997, 76% avg. Small grain, grazing crops 4% very poor, 14% poor, 33% fair, 44% good, 5% excellent. Winter wheat 89% seeded, 80% 1997, 88% avg. Barley 100% seeded, 99% 1997, 100% avg. Pasture feed 36% very poor, 40% poor, 20% fair, 4% good. Livestock 3% very poor, 16% poor, 32% fair, 45% good, 4% excellent. Unseasonably high temperatures combined with lack of significant rainfall caused moisture levels to decrease slightly last week throughout the Commonwealth. The mild temperatures have been good for livestock, with 81% remaining in fair or better condition. However, large scale feeding, watering to sustain livestock herds over the last few weeks have caused serious depletion of hay stocks, farm wells. Eighty-two percent of the small grain crop that has emerged to date is in fair or better condition. The remaining acreage has suffered from the effects of dry soil conditions. A few producers of small grains must decide whether to re-plant their acreage or use the poorly developed crop as a cover for next season. Soybean harvest is progressing somewhat slower than previous reports but is expected to wrap up in 1 to 2 weeks. Producers are reporting highly variable yields, depending on locality and how much precipitation was received throughout the growing season. Other activities for the week included continued marketing of cattle, grading, preparing tobacco for market, harvesting vegetables, cutting firewood, cleaning, repairing, winterizing equipment, applying weed control to small grains, participating in pesticide re-certification classes.

WASHINGTON: Days suitable for fieldwork 3.4. Topsoil moisture 11% short; 69% adequate, 20% surplus. Subsoil moisture 3% very short, 30% short, 66% adequate, 1% surplus. Considerable precipitation improved subsoil moisture, benefited winter wheat growth, development. Sugar beet, corn harvests were completed in central areas. Corn for grain 90% harvested, 89% 1997, 86% avg. Hay, other roughage supplies, 3% short, 85% adequate, 12% surplus. Livestock were on winter feeding programs. Fruit growers continued with winter activities in orchards including tree pruning. U-Cut Christmas tree farms were in full swing.

WEST VIRGINIA: Days suitable for fieldwork 6.2. Topsoil moisture 27% very short, 59% short, 14% adequate. Rain is needed to restore soil moisture, improve wheat condition. Corn harvested for grain 95%, 86% 1997, 88% avg. Wheat 65% poor, 32% fair, 3% good; planted 100%, 100% 1997, 98% avg.; emerged 88%. Cattle 1% poor, 27% fair, 68% good, 4% excellent. Sheep 46% fair, 49% good, 5% excellent.

WISCONSIN: Although many areas saw at least a trace amount of precipitation, it was essentially a dry week. Only the northwest district, with 0.10 in. of rainfall, had any measurable precipitation. All three northern districts continue to be behind on cumulative rainfall, with the rest of the State showing a surplus. Most farmers have good hay and grain supplies for winter feeding of livestock.

WYOMING: Unusally warm weather, little precipitation continued last week. Topsoil moisture 12% short, 88% adequate, 4% surplus. Subsoil moisture 3% very short, 10% short, 87% adequate. Corn for grain harvest remained slow as moisture content was high, particularly in the northwest. As of November 29, corn 75% harvested compared with 96% 1997, 95% avg. Winter wheat in good to excellent condition but no snowcover. Livestock in good condition, still able to graze winter ranges. Hay supplies 68% adequate, 26% surplus; shortages in some northeastern areas.

International Weather and Crop Summary

November 22 - 28, 1998

HIGHLIGHTS

FSU-WESTERN: The third consecutive week of unseasonably cold weather covered dormant winter grains.

EUROPE: Unseasonably cold weather prevented winter grain growth in western Europe and kept crops dormant in the east.

NORTHWESTERN AFRICA: Persistent dryness delayed winter grain planting in Morocco, while soaking rain provided abundant topsoil moisture for planting in Algeria and Tunisia.

SOUTH ASIA: Seasonable dryness favored summer crop harvesting and the planting of winter grown crops.

SOUTH AMERICA: Additional rain was needed in Argentina for winter wheat development and in southern Brazil for soybean germination.

SOUTH AFRICA: Widespread, soaking rain maintained at favorable moisture levels for corn and other summer crops.

SOUTHEAST ASIA: Tropical activity remained high over the western Pacific, with most major rice and plantation crop areas receiving additional heavy rain.

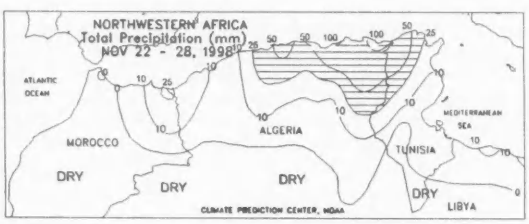
EASTERN ASIA: Winter wheat was entering dormancy in the North China Plain.

AUSTRALIA: Locally heavy rain kept Queensland unfavorably wet for early summer crop development.

CENTRAL AMERICA: Heavy showers (locally 30-100 mm) continued to hinder flood recovery in Honduras, especially in northern areas.

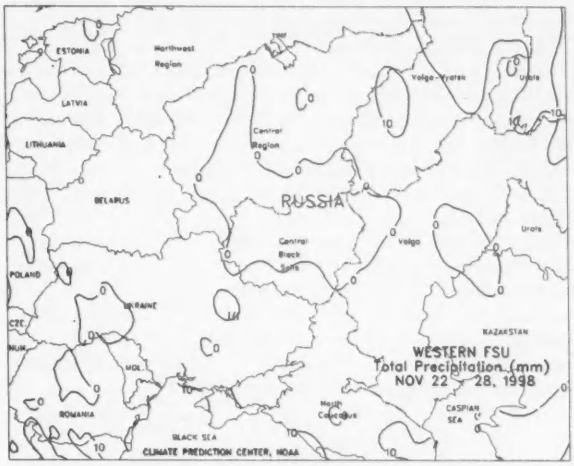
EUROPE

Unseasonably cold weather continued to prevail across most of Europe, preventing further winter crop growth in the west and maintaining dormancy in winter grains in the east. Weekly temperatures averaged 3 to 6 degrees C below normal in most of Europe, except in Poland, where temperatures averaged 7 to 9 degrees C below normal. Lowest temperatures (-15 to -22 degrees C) prevailed in winter grain areas in eastern Poland, where a light to moderate snow cover provided protection from potential winterkill. Elsewhere, extreme minimum temperatures ranged from -7 to -11 degrees C in France, the Benelux countries, Germany, and the Czech Republic, and from -3 to -7 degrees C in central Spain, northern Italy, Slovenia, and most of southeastern Europe. In Germany, reports indicated that the freezing weather firmed topsoils, helping the corn and sugar beet harvests, previously delayed by wet weather. By week's end, temperatures began to moderate in western Europe, improving conditions for winter grains. However, light showers (around 10 mm) accompanied the warming trend in England and France, slowing late-season fieldwork. Elsewhere, mostly dry weather favored rapid winter grain planting in Spain. Heavy rains (50 to more than 100 mm) in Greece halted late-season fieldwork.



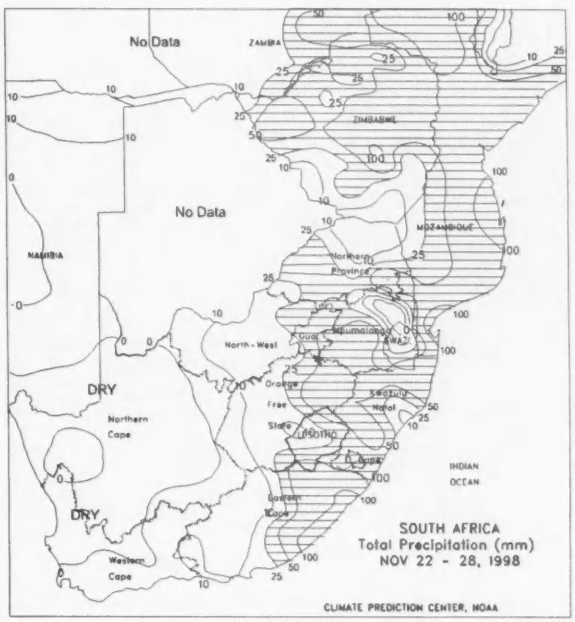
NORTHWESTERN AFRICA

In Morocco, persistent dryness continued to hamper winter grain planting. Significant rains are needed in Morocco before planting can become widespread. Farther east, showers (10-27 mm) moistened topsoils in western Algeria, while soaking rains (25-92 mm) provided abundant topsoil moisture for winter wheat germination and establishment in central and eastern Algeria and northern Tunisia. However, the wet weather in these areas caused planting delays. Weekly temperatures averaged near normal in Morocco and 1 to 5 degrees C below normal in Algeria and Tunisia.



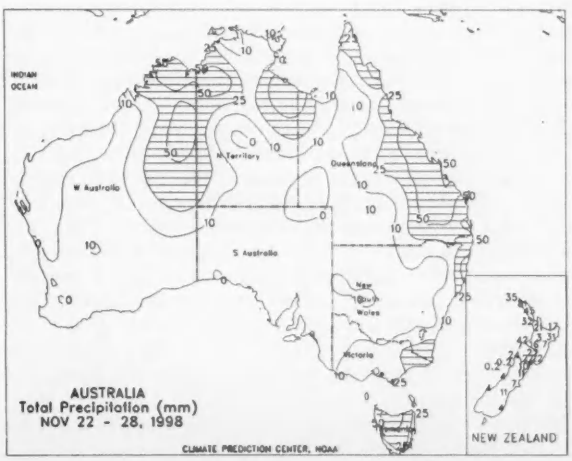
FSU-WESTERN

The third consecutive week of unusually cold weather persisted over the region, with weekly temperatures ranging from 4 to 10 degrees C below normal. High pressure predominated over the region during the week, keeping most areas generally dry (precipitation less than 5 mm). An earlier-than-usual snow cover extended as far south as southern Ukraine and the northern tip of the North Caucasus region in Russia, providing protection from bitterly cold weather (extreme minimum temperatures ranging from -15 to -31 degrees C). Although winter wheat areas in extreme southern Ukraine and the southern half of the North Caucasus remained snow-free during the week, temperatures did not fall low enough to threaten dormant crops.



SOUTH AFRICA

Widespread, heavy rain (25-50 mm, locally exceeding 100 mm) continued throughout the main summer growing areas. Rainfall increased from west to east, with light to moderate rainfall (25 mm or less) recorded in western corn areas of Free State and North West. Heavier rain (25-50 mm or more) developed over central and eastern sections of the corn belt and sugarcane areas of KwaZulu-Natal. The heavy rain extended as far west as the central growing areas of Eastern Cape. Dryness in Western Cape favored wheat harvesting. Temperatures across the region were generally seasonable, with highs hitting the middle 30's degrees C in the traditionally warmer parts of the western corn belt.

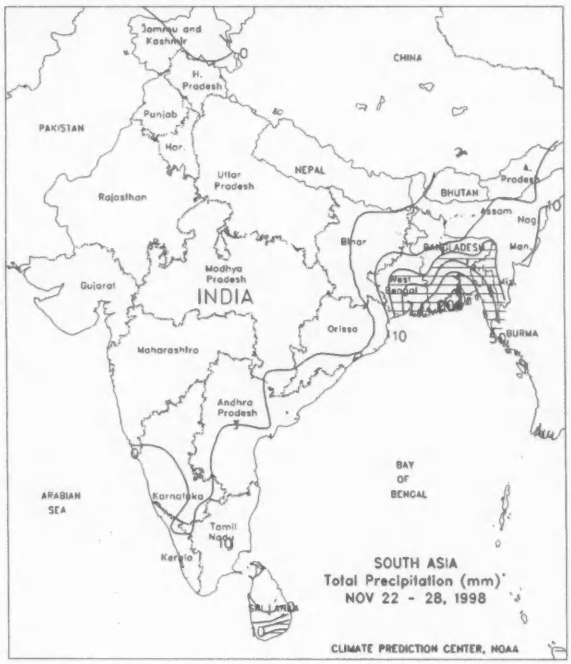


AUSTRALIA

Locally heavy rain (25-50 mm or more) soaked Queensland, keeping the main agricultural areas extremely wet. Cloudy, unseasonably cool weather slowed development of sorghum and cotton. Winter grain harvests should be virtually complete in the wettest areas of Queensland and northern New South Wales. Farther south, scattered, mostly light showers (10 mm or less, most locations) caused minor disruptions in winter grain harvesting. Out west, mostly dry, occasionally warm weather favored maturing wheat and barley. In New Zealand, light rain (15 mm or less) covered most agricultural areas, although moderate showers (25 mm or greater) covered northern crop areas of North Island.

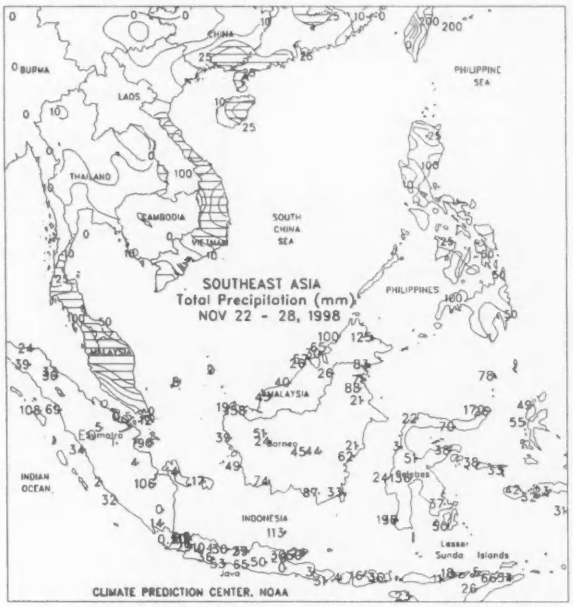
SOUTH ASIA

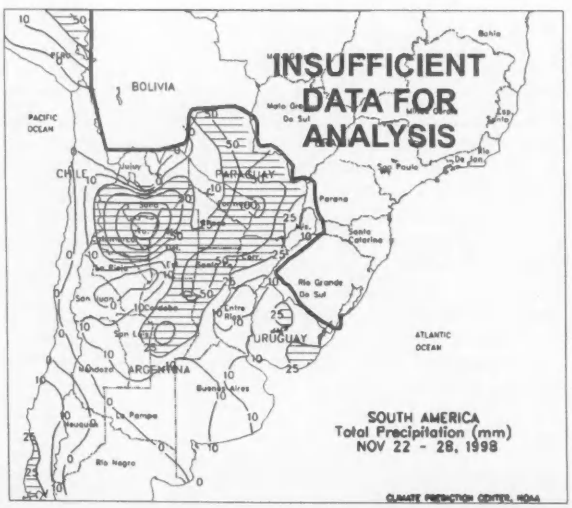
Seasonably dry weather dominated the region, favoring summer crop harvesting and winter crop planting. The exception was Bangladesh and neighboring locations in India, which experienced lingering showers (25-50 mm or more) following last week's storminess. Transitional rice harvesting and transplanting in that area continued to suffer weather-related disruptions. In southern India, activities for the planting of winter-grown (rabi) grains, oilseeds, and cotton progressed with adequate to abundant moisture reserves.



SOUTHEAST ASIA

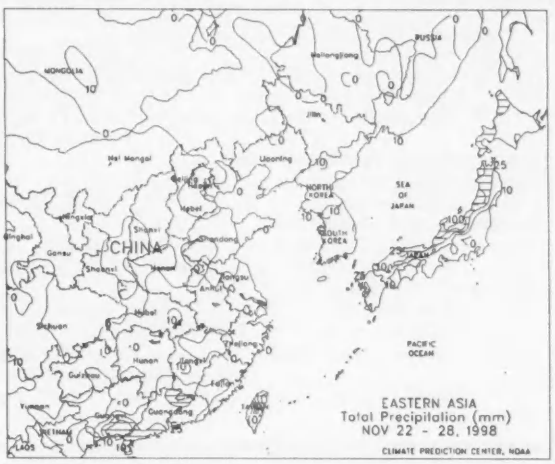
Tropical Storm Elvis rocked central Vietnam, with locally heavy rains (50-100 mm or greater) and sustained winds of about 50 knots. This new storm caused additional disruptions in seasonal rice harvesting and transplanting. In contrast, the main rice areas of southern Vietnam and Thailand were drier than last week, with light, scattered showers (15 mm or less) having a minor impact on fieldwork. Farther south, heavy showers (50-100 mm or more) continued along the Malay Peninsula, although dry pockets developed in southern oil palm areas of western Malaysia. Widespread tropical showers (25-100 mm or more) provided rice and plantation crops in eastern Malaysia and Indonesia with adequate to abundant moisture. In the Philippines, widespread, locally heavy rainfall (25-50 mm, locally exceeding 100 mm) hampered main-season harvests but maintained high early-season moisture reserves for second-season crops.





SOUTH AMERICA

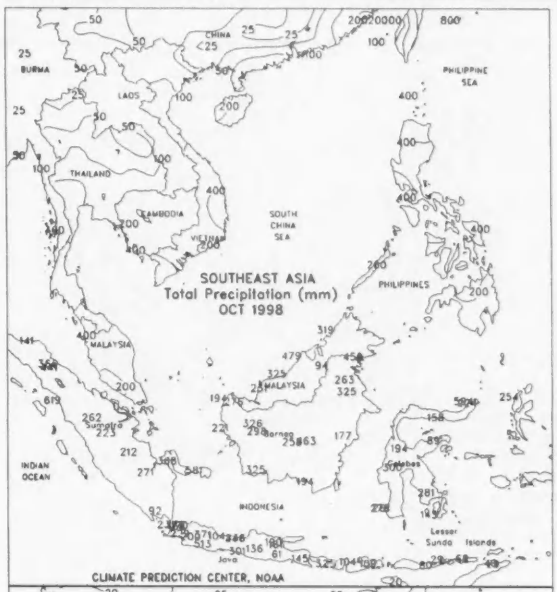
In central Argentina, light rain (15 mm or less) dampened topsoils in primary winter wheat areas of Buenos Aires. Moisture was limited for normal development of immature winter wheat, and rain is needed soon to reduce the potential for stress. Farther north, showers (15-50 mm or more) were unfavorable for maturing wheat but improved moisture reserves for newly planted summer crops. According to reports as of November 20, corn was 73 percent planted versus 77 percent last year, sunseed was 83 percent planted versus 77 percent last year, and soybeans were 32 percent planted versus 39 percent last year. Winter wheat harvests were underway in northern crop areas. In southern Brazil, additional rainfall was needed for establishment of soybeans and other summer crops. Surface observations were missing for much of the period but satellite data suggested that the main soybean areas received only light, scattered showers. Moderate to heavy rain (25-50 mm or more) early in the week favored summer crop development in Minas Gerais. According to reports as of November 27, soybeans were 75 percent planted versus 72 percent last year. However, the planting pace was slightly behind schedule in Rio Grande do Sul (67 percent versus 74 percent last year) due to dryness.

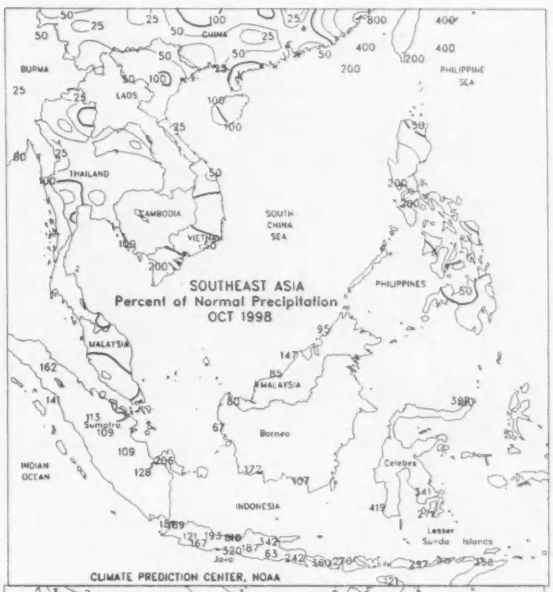


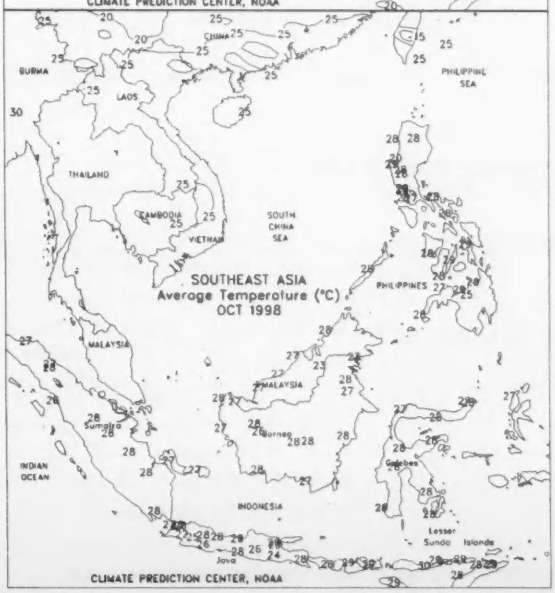
EASTERN ASIA

Dry, seasonably cool weather dominated the North China Plain as crops advanced toward dormancy. Sub-freezing temperatures (as low as -10 degrees C) in northern wheat areas helped harden wheat while burning back vegetative growth. Temperatures in the southern half of the Plain were 1 to 3 degrees C above normal and well above the threshold for winter wheat dormancy, but long-term dryness continued to restrict crop establishment. In southern China, late double-crop rice harvesting intensified as warmer, drier weather enveloped the area. Moderate showers (25 mm or greater) were confined to coastal areas centered over Guangdong. Light to moderate showers (10-25 mm or more) hampered late rice harvesting in South Korea and Japan.

Revised October 1998 maps (plotted data included) for Southeast Asia are shown below.







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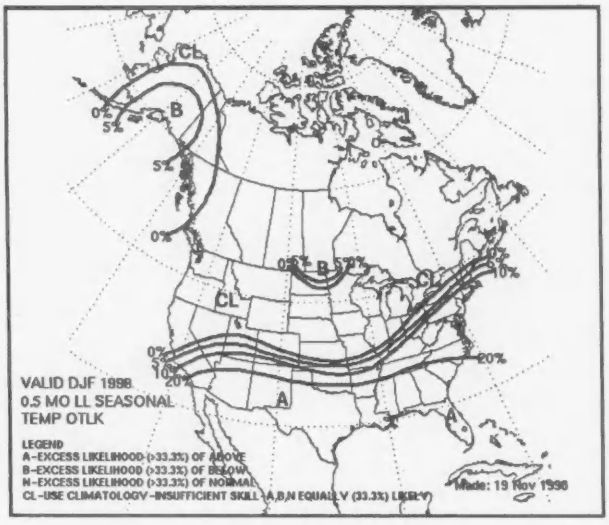
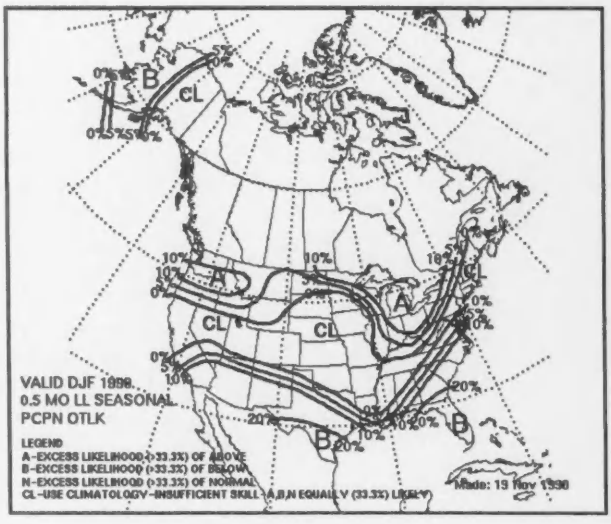


TEMPERATURE: December 1998 - February 1999



PRECIPITATION: December 1998 - February 1999

A complete set of long-lead products, extending out to December 1999 - February 2000, is available from the Climate Prediction Center via the Internet:

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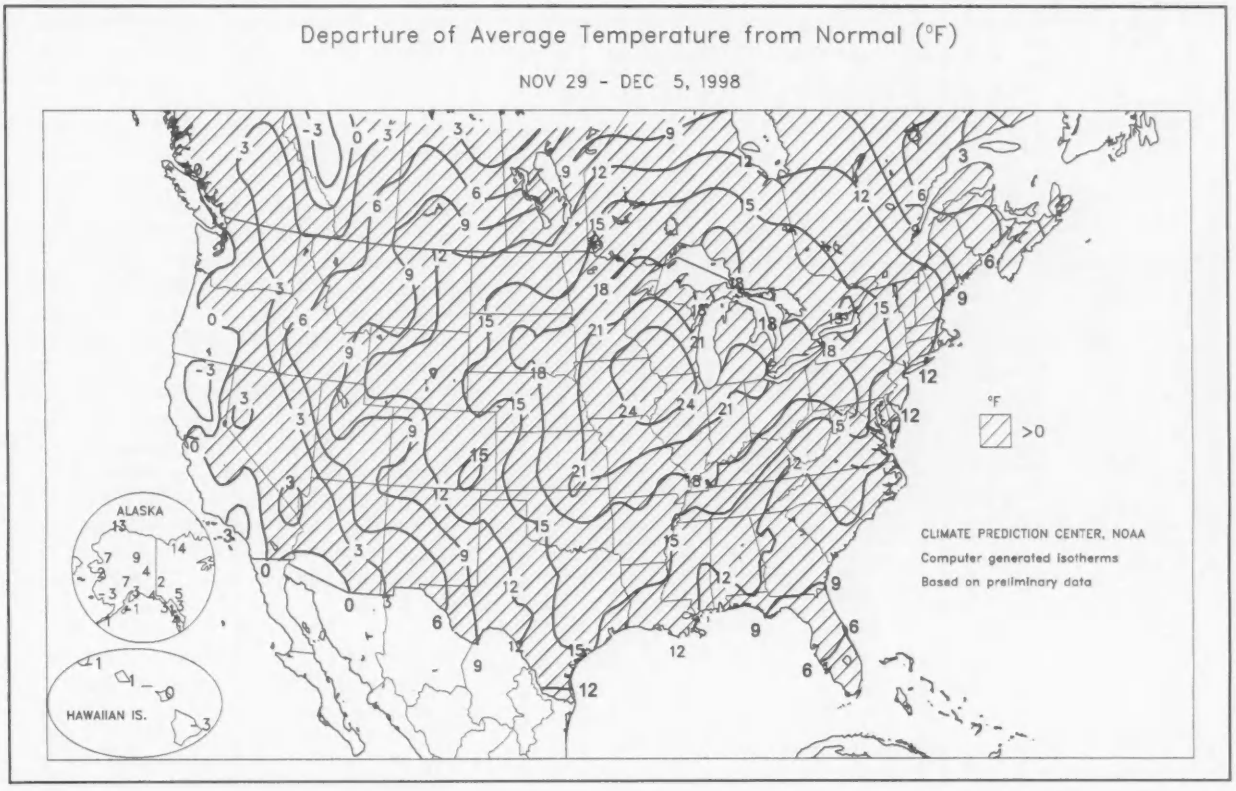

HIGHLIGHTS

November 29 - December 5, 1998

Exceptionally mild weather prevailed from the **Rockies eastward**, promoting final summer crop harvesting and spurring winter wheat growth. Weekly temperature departures ranged from +8 to +22°F on the **Plains** and +18 to +26°F across the **Corn Belt**. Nearly three dozen locations, mostly in the **Midwest** and **East**, reported December-record high temperatures. In contrast, sharply colder air arrived across the **West**, overspreading the **Plains** by week's end. Weekly temperatures averaged as much as 3°F below normal in **northern California**, and late-week readings approached the freezing mark as far south as **southern Arizona** and

(Continued on page 2)

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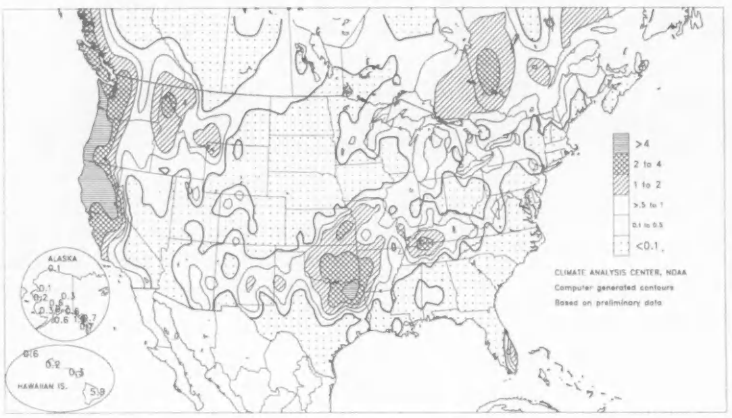
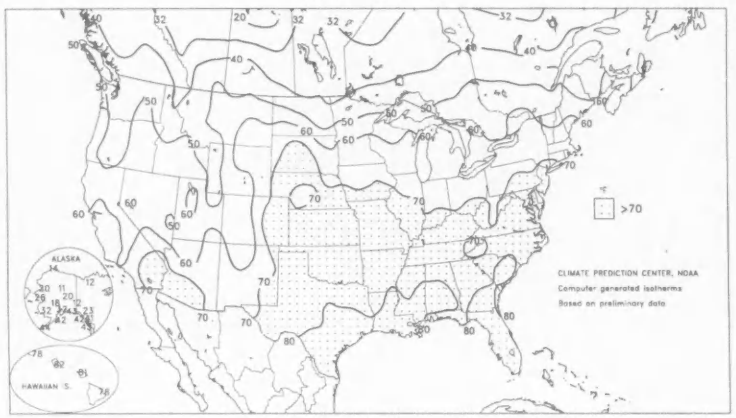
Total Precipitation (Inches)

NOV 29 - DEC 5, 1998



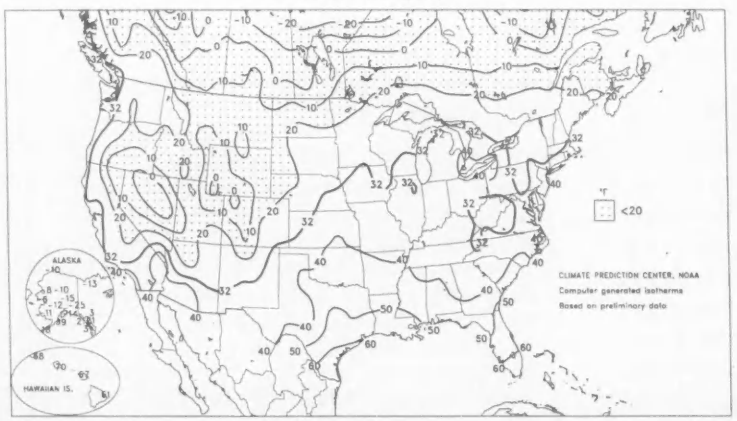
Extreme Maximum Temperature (°F)

NOV 29 - DEC 5, 1998



Extreme Minimum Temperature (°F)

NOV 29 - DEC 5, 1998



(Continued from front cover)

California's San Joaquin Valley. Preceding the arrival of colder air, heavy precipitation continued along the **West Coast** as far south as **central California**. Meanwhile, snow fell across portions of **Montana** late in the week, helping to insulate the winter wheat crop. Farther south, showers dampened areas from the **southern Plains** to **southeastern Kansas** prior to the onset of cooler conditions. While the moisture benefited winter wheat, it briefly delayed final cotton harvesting on the **High Plains**. Dry weather persisted, however, from the **Mid-Atlantic region** into the **Southeast**, allowing drought to intensify and further reducing soil moisture for fall-sown crops.

Nearly 400 daily-record highs were established during the week, boosting the November 22 - December 5 total to more than 500. On Sunday, low temperatures of 57°F in **LaCrosse, WI** and 54°F in **Rochester, MN** were higher than previous daily-record highs. Five days later, lows of 59°F in both **Moline, IL** and **Pittsburgh, PA** were the highest on record during December. During the first 5 days of December, monthly record highs were set or tied in various locations from **Pierre, SD** (77°F on Tuesday) to **Salisbury, MD** (76°F on Saturday). Highs of 68°F (on December 1) in **Minneapolis, MN** and 72°F (on December 4) in **Bridgeport, CT** shattered former December records by 5°F or more. In **Chicago, IL**, temperatures remained above freezing on 15 consecutive days (November 22 to December 6).

East of the Rockies, only parts of the **Plains** received significant precipitation. Rainfall twice overspread portions of the **central and southern Plains**, resulting in 1- to 4-inch weekly totals from **southeastern Kansas** to **northeastern Texas**. Daily-record rainfall totals were observed in **Oklahoma City, OK** (0.80 inch on Sunday) and **Dallas-Ft. Worth, TX** (1.48 inches on Thursday). Farther north, snow overspread areas from the **Great Basin** to the **northern Plains** toward week's end. In **Montana, Butte** netted 13.1 inches on December 3-4. Late-week snowfall totaled 6.4 inches in **Elko, NV**, 5.2 inches in **Billings, MT**, and 4.5 inches in **Pocatello, ID**. Meanwhile, heavy rainfall and mountain snows gradually ended across the **West Coast States**. Nevertheless, month-to-date rainfall reached 4.45 inches in **Astoria, OR** and 3.21 inches in **Eureka, CA**. On Friday, lows in **California's Sacramento Valley** plunged to daily-record levels in **Redding** (28°F) and **Red Bluff** (29°F).

National Weather Data for Selected Cities

Weather Data for the Week Ending December 5, 1998

Data Provided by Climate Prediction Center (301-763-8000 EXT. 7503) and the Southern Regional Climate Center

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP. °F		PRECIP.	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL	BIRMINGHAM	75	51	79	42	63	15	0.00	-1.13	0.00	0.00	0	60.48	120	90	46	0	0	0	0
	HUNTSVILLE	75	47	79	36	61	14	0.04	-1.26	0.04	0.00	0	38.63	74	93	45	0	0	1	0
	MOBILE	77	57	79	47	67	11	0.30	-0.86	0.26	0.29	35	84.58	142	100	61	0	0	5	0
	MONTGOMERY	78	49	83	39	64	11	0.06	-1.08	0.03	0.05	6	46.44	95	99	50	0	0	4	0
AK	ANCHORAGE	27	14	32	5	21	3	0.73	0.49	0.59	0.73	406	11.06	74	97	75	0	7	2	1
	BARROW	9	1	14	-10	5	13	0.07	0.03	0.00	0.05	250	4.55	108	82	73	0	7	5	0
	FAIRBANKS	7	-7	20	-15	0	4	0.33	0.14	0.25	0.33	236	10.45	102	89	80	0	7	4	0
	JUNEAU	36	28	41	21	32	3	0.71	-0.27	0.36	0.71	100	59.59	118	94	68	0	7	3	0
	KODIAK	37	26	42	19	31	-1	0.65	-0.77	0.33	0.24	24	101.94	165	93	50	0	6	5	0
	NOME	19	5	26	-6	12	2	0.24	0.04	0.08	0.23	164	23.56	168	93	76	0	7	6	0
AZ	FLAGSTAFF	46	24	55	13	35	3	0.62	0.10	0.27	0.45	122	27.41	132	96	52	0	6	3	0
	PHOENIX	65	49	74	46	57	0	0.22	0.01	0.04	0.20	125	10.05	147	90	39	0	0	4	0
	TUCSON	66	42	75	40	54	0	0.50	0.29	0.24	0.29	181	13.46	121	90	33	0	0	3	0
	YUMA	67	50	71	44	58	0	0.08	0.00	0.03	0.05	83	4.52	164	88	39	0	0	2	0
AR	FORT SMITH	74	53	79	46	63	19	1.71	0.88	1.01	0.68	117	42.35	110	98	59	0	0	7	2
	LITTLE ROCK	73	53	79	43	63	17	0.28	-0.93	0.28	0.00	0	37.82	80	99	62	0	0	1	0
CA	BAKERSFIELD	59	42	71	33	51	1	0.38	0.23	0.24	0.32	320	13.00	251	96	50	0	0	3	0
	EUREKA	53	42	58	34	47	-2	4.79	3.31	2.09	3.32	325	61.61	190	92	74	0	0	7	2
	FRESNO	58	43	69	34	50	3	0.31	-0.01	0.28	0.31	141	16.95	181	94	53	0	0	2	0
	LOS ANGELES	61	49	63	47	55	-3	0.41	0.02	0.18	0.41	158	25.45	240	93	62	0	0	5	0
	REDDING	52	38	57	28	45	-2	3.90	2.65	1.42	1.26	146	60.33	211	94	63	0	2	5	3
	SACRAMENTO	55	41	61	32	48	0	1.33	0.75	0.68	0.45	115	28.60	186	94	63	0	1	5	1
	SAN DIEGO	61	52	63	48	56	-3	0.58	0.21	0.47	0.58	223	15.67	182	90	58	0	0	4	0
	SAN FRANCISCO	57	46	61	37	51	0	1.49	0.82	0.68	0.69	153	32.39	191	93	66	0	0	5	1
CO	ALAMOSA	50	17	57	13	34	11	0.00	-0.10	0.00	0.00	0	6.84	98	89	29	0	7	0	0
	CO SPRINGS	60	32	71	25	46	14	0.02	-0.09	0.02	0.02	25	16.09	101	56	19	0	4	1	0
	DENVER	63	30	71	16	46	13	0.00	-0.17	0.00	0.00	0	15.92	107	62	18	0	5	0	0
	GRAND JUNCTION	52	27	56	19	40	7	0.08	-0.06	0.06	0.02	20	8.86	109	89	39	0	6	2	0
	PUEBLO	68	27	75	22	47	13	0.00	-0.11	0.00	0.00	0	11.43	105	77	17	0	5	0	0
CT	BRIDGEPORT	58	43	72	41	51	12	0.06	-0.79	0.01	0.06	10	41.00	108	92	53	0	0	2	0
	HARTFORD	57	37	70	33	47	13	0.08	-0.87	0.00	0.06	9	44.58	109	88	43	0	0	1	0
DC	WASHINGTON	66	46	75	38	57	13	0.00	-0.72	0.00	0.00	0	34.18	95	87	41	0	0	0	0
DE	WILMINGTON	66	43	74	36	54	14	0.00	-0.80	0.00	0.00	0	35.52	94	95	52	0	0	0	0
FL	DAYTONA BEACH	79	60	80	54	70	7	0.36	-0.23	0.35	0.36	88	39.53	86	97	59	0	0	2	0
	JACKSONVILLE	77	56	79	52	67	9	0.03	-0.52	0.01	0.02	5	56.45	115	100	62	0	0	3	0
	KEY WEST	81	73	82	71	77	4	0.04	0.47	0.02	0.02	6	36.37	96	90	66	0	0	3	0
	MIAMI	81	70	82	68	76	5	0.33	-0.11	0.20	0.33	106	68.63	126	85	57	0	0	5	0
	ORLANDO	82	60	84	57	71	7	0.01	-0.50	0.01	0.01	3	44.11	95	99	49	0	0	1	0
	PENSACOLA	73	58	79	47	65	9	0.07	-0.82	0.02	0.06	9	64.06	109	99	66	0	0	4	0
	TALLAHASSEE	78	50	80	40	64	9	0.03	-1.05	0.01	0.03	4	57.25	93	99	56	0	0	3	0
	TAMPA	82	63	84	57	72	8	0.00	-0.47	0.00	0.00	0	54.24	129	99	58	0	0	0	0
	WEST PALM BEACH	81	66	82	60	74	5	0.87	0.14	0.49	0.87	178	64.46	110	88	58	0	0	4	0
GA	ATHENS	73	47	75	38	60	11	0.00	-0.89	0.00	0.00	0	48.48	105	98	50	0	0	0	0
	ATLANTA	73	51	75	44	62	14	0.00	-0.94	0.00	0.00	0	44.23	94	90	44	0	0	0	0
	AUGUSTA	78	43	79	32	60	10	0.00	-0.66	0.00	0.00	0	46.28	111	100	42	0	1	0	0
	COLUMBUS	76	51	79	43	63	12	0.00	-1.04	0.00	0.00	0	31.60	68	96	51	0	0	0	0
	MACON	77	45	79	36	61	10	0.00	-0.84	0.00	0.00	0	41.82	102	100	45	0	0	0	0
	SAVANNAH	77	50	79	42	64	9	0.03	-0.55	0.03	0.00	0	47.16	101	100	52	0	0	1	0
HI	HILO	78	65	78	61	71	-3	5.92	2.78	1.37	4.34	200	102.64	86	99	73	0	0	7	5
	HONOLULU	81	72	82	70	76	1	0.19	-0.62	0.01	0.18	31	3.81	20	80	51	0	0	4	0
	KAHULUI	79	69	81	67	74	0	0.30	-0.37	0.09	0.17	36	5.75	32	86	56	0	0	5	0
	LIHUE	77	70	78	68	73	-1	0.64	-0.54	0.18	0.55	67	24.73	64	87	64	0	0	6	0
ID	BOISE	48	35	60	25	41	8	0.48	0.15	0.33	0.39	177	15.45	141	88	51	0	3	5	0
	LEWISTON	44	34	49	29	39	2	0.17	-0.11	0.11	0.06	30	16.83	147	90	54	0	3	2	0
	POCATELLO	43	30	53	19	37	8	0.41	0.15	0.20	0.33	183	13.10	117	99	62	0	3	5	0
IL	CHICAGO/O'HARE	64	49	68	33	56	24	0.41	-0.24	0.41	0.00	0	36.33	108	93	72	0	0	1	0
	MOLINE	65	49	71	31	57	26	0.48	-0.07	0.48	0.00	0	47.07	126	95	68	0	1	1	0
	PEORIA	63	48	69	33	56	23	0.38	-0.23	0.35	0.03	7	40.74	119	94	71	0	0	2	0
	ROCKFORD	62	46	66	30	54	25	0.30	-0.23	0.29	0.00	0	39.03	113	98	74	0	1	2	0
	SPRINGFIELD	66	48	72	32	57	22	0.11	-0.54	0.11	0.00	0	44.26	134	90	60	0	1	1	0
IN	EVANSVILLE	67	48	73	33	58	18	0.44	-0.45	0.26	0.16	25	40.35	101	98	59	0	0	2	0
	FORT WAYNE	61	46	66	34	54	20	0.06	-0.63	0.04	0.02	4	37.34	116	92	67	0	0	2	0
	INDIANAPOLIS	64	48	70	33	56	20	0.21	-0.59	0.21	0.00	0	48.37	130	91	58	0	0	1	0
	SOUTH BEND	62	49	66	33	56	22	0.18	-0.62	0.16	0.02	4	33.22	91	93	73	0	0	2	0
IA	BURLINGTON	65	51	73	37	58	27	0.25	-0.25	0.24	0.01	3	50.82	148	86	63	0	0	2	0
	CEDAR RAPIDS	64	44	69	29	54	25	0.10	-0.32	0.10	0.00	0	45.24	140	99	71	0	2	1	0
	DES MOINES	62	44	70	34	53	23	0.17	-0.17	0.08	0.03	12	39.57	124	98	71	0	0	3	0
	DUBUQUE	62	45	67	31	54	26	0.16	-0.38	0.14	0.02	5	43.20	118	98	72	0	2	3	0
	SIOUX CITY	60	35	70	30	47	20	0.03	-0.16	0.02	0.03	21	30.96	123	98	59	0	4	2	0
	WATERLOO	64	42	69	30	53	26	0.10	-0.25	0.08	0.01	4	44.55	136	96	67	0	1	3	0
KS	CONCORDIA	63	44	70	39	53	19	0.20	-0.02	0.18	0.01	6	33.07	118	96	60	0	0	3	0
	DODGE CITY	64	44	71	40	54	18	0.13	-0.04	0.12	0.00	0	21.48	103	89	40	0	0	2	0
	GOODLAND	63	31	71	23	47	14	0.00	-0.12	0.00	0.00	0	18.20	102	81	31	0	4	0	0
	TOPEKA	68	50	75	39	59	23	0.62	0.26	0.49	0.01	4	40.96	120	93	59	0	0	3	0

Based on 1961-90 normals

Weather Data for the Week Ending December 5, 1998

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP, °F		PRECIP.	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL IN. SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	WICHITA	65	49	71	39	57	20	0.82	0.51	0.45	0.15	68	33.76	119	96	66	0	0	4	0
KY	JACKSON	68	51	73	39	60	18	0.57	-0.46	0.40	0.40	55	48.64	106	75	39	0	0	2	0
	LEXINGTON	67	48	71	37	57	17	0.53	-0.38	0.41	0.48	74	46.89	114	91	56	0	0	3	0
	LOUISVILLE	69	52	73	39	61	20	0.15	-0.74	0.09	0.14	22	44.98	109	94	58	0	0	3	0
	PADUCAH	68	51	74	34	60	18	0.85	-0.26	0.73	0.76	96	53.02	117	94	56	0	0	4	1
LA	BATON ROUGE	79	60	82	51	69	14	0.09	-1.10	0.09	0.09	10	53.00	94	99	59	0	0	1	0
	LAKE CHARLES	78	61	80	58	70	14	0.01	-1.09	0.01	0.01	1	52.98	105	100	65	0	0	1	0
	NEW ORLEANS	78	62	81	55	70	13	0.17	-1.08	0.17	0.17	19	76.95	135	97	60	0	0	1	0
	SHREVEPORT	77	58	80	47	68	16	0.66	-0.33	0.53	0.13	19	44.50	104	97	57	0	0	4	1
ME	CARIBOU	35	21	44	13	28	7	0.45	-0.35	0.32	0.13	23	34.38	101	93	65	0	7	4	0
	PORTLAND	52	34	65	25	43	11	0.04	-1.11	0.02	0.04	5	53.49	132	91	43	0	2	3	0
MD	BALTIMORE	68	40	73	31	54	13	0.05	-0.73	0.05	0.05	9	33.17	87	88	38	0	1	1	0
MA	BOSTON	56	43	69	39	50	11	0.03	-0.93	0.01	0.03	4	51.88	136	91	51	0	0	2	0
	WORCESTER	54	39	65	35	47	15	0.04	-0.94	0.04	0.04	6	45.16	102	80	46	0	0	1	0
MI	ALPENA	57	36	63	29	47	18	0.50	0.00	0.44	0.06	17	31.71	117	97	66	0	1	2	0
	GRAND RAPIDS	60	48	65	37	54	22	0.61	-0.12	0.55	0.05	10	31.11	92	92	65	0	0	4	1
	HOUGHTON LAKE	56	40	60	35	48	20	0.58	0.09	0.50	0.08	24	23.43	88	98	69	0	0	3	1
	LANSING	61	47	65	34	54	23	0.31	-0.28	0.28	0.03	7	27.39	95	91	64	0	0	3	0
	MARQUETTE	50	33	59	26	41	19	0.19	-0.43	0.05	0.06	14	37.84	115	93	59	0	2	3	0
	MUSKEGON	57	46	65	39	52	19	0.76	0.04	0.55	0.20	39	27.19	90	94	73	0	0	3	1
MN	DULUTH	44	31	53	27	38	19	0.58	0.26	0.54	0.56	255	32.67	113	98	68	0	5	3	1
	INT'L FALLS	36	26	44	16	31	17	0.05	-0.15	0.01	0.05	36	22.23	94	96	69	0	8	1	0
	MINNEAPOLIS	57	34	68	30	46	22	0.24	-0.04	0.21	0.24	120	32.89	120	95	64	0	5	2	0
	ROCHESTER	58	39	62	30	48	25	0.00	-0.28	0.00	0.00	0	31.90	111	98	63	0	1	0	0
	ST. CLOUD	52	29	61	24	41	20	0.76	0.54	0.43	0.76	475	24.77	93	96	54	0	6	2	0
MS	JACKSON	76	54	80	46	65	14	0.01	-1.29	0.01	0.01	1	45.32	90	97	55	0	0	1	0
	MERIDIAN	76	48	81	41	62	11	0.02	-1.28	0.02	0.02	2	50.30	98	100	54	0	0	1	0
	TUPELO	73	50	78	39	61	14	0.11	-1.24	0.08	0.03	3	43.41	86	96	55	0	0	2	0
MO	COLUMBIA	69	48	74	34	59	22	0.40	-0.24	0.35	0.04	9	43.80	118	98	61	0	0	5	0
	KANSAS CITY	66	49	71	38	57	22	0.85	0.46	0.58	0.01	4	48.33	133	96	68	0	0	3	1
	SAINT LOUIS	69	50	74	38	59	21	0.16	-0.62	0.14	0.02	4	42.81	122	91	61	0	0	2	0
	SPRINGFIELD	68	48	74	36	58	18	0.94	0.11	0.75	0.19	33	47.30	117	99	64	0	0	2	1
MT	BILLINGS	45	29	59	11	37	8	0.54	0.37	0.33	0.51	425	14.21	98	87	51	0	5	4	0
	BUTTE	36	21	48	1	29	8	0.91	0.80	0.71	0.89	1113	15.00	128	90	54	0	7	5	1
	GLASGOW	41	25	57	12	33	13	0.25	0.18	0.18	0.20	333	14.43	136	91	61	0	7	4	0
	GREAT FALLS	39	27	53	19	33	6	0.00	-0.17	0.00	0.00	0	16.42	113	85	55	0	5	0	0
	KALISPELL	37	26	43	21	32	6	0.77	0.40	0.40	0.19	73	19.23	128	94	64	0	6	5	0
	MILES CITY	47	28	64	18	38	14	0.06	-0.07	0.02	0.06	60	13.50	100	92	54	0	6	2	0
	MISSOULA	37	30	45	23	34	7	0.53	0.30	0.34	0.45	265	20.98	168	96	62	0	6	4	0
NE	GRAND ISLAND	59	38	70	33	49	19	0.01	-0.19	0.01	0.01	7	25.90	106	96	51	0	0	1	0
	LINCOLN	62	39	71	34	50	20	0.03	-0.21	0.02	0.03	18	34.06	124	97	57	0	0	2	0
	NORFOLK	60	36	69	30	48	20	0.02	-0.17	0.01	0.02	14	35.05	143	94	52	0	3	2	0
	NORTH PLATTE	61	25	67	21	43	14	0.00	-0.12	0.00	0.00	0	22.43	119	96	37	0	7	0	0
	OMAHA	62	42	72	36	52	22	0.04	-0.24	0.00	0.02	11	39.53	136	97	59	0	0	2	0
	SCOTTSBLUFF	62	29	72	16	46	16	0.00	-0.14	0.00	0.00	0	16.39	111	78	25	0	5	0	0
	VALENTINE	62	28	74	20	45	18	0.00	-0.11	0.00	0.00	0	24.07	135	87	34	0	5	0	0
NV	ELY	44	17	56	-9	31	2	0.25	0.09	0.25	0.25	208	12.16	126	89	46	0	6	1	0
	LAS VEGAS	61	43	68	39	52	3	0.00	-0.09	0.00	0.00	0	6.92	183	74	35	0	0	0	0
	RENO	47	29	58	15	38	3	0.15	-0.07	0.09	0.08	38	12.04	181	82	41	0	4	2	0
	WINNEMUCCA	43	22	57	-9	32	0	0.23	0.01	0.12	0.17	106	15.30	203	94	56	0	4	5	0
NH	CONCORD	54	32	66	25	43	13	0.10	-0.69	0.00	0.10	18	34.73	103	91	40	0	4	2	0
NJ	NEWARK	65	47	75	41	56	15	0.02	-0.83	0.01	0.02	3	42.44	103	78	40	0	0	1	0
NM	ALBUQUERQUE	55	37	59	31	46	8	0.15	0.05	0.15	0.00	0	9.61	114	90	40	0	1	1	0
NY	ALBANY	55	34	65	27	45	13	0.12	-0.60	0.03	0.12	24	38.05	113	90	51	0	4	2	0
	BINGHAMTON	57	42	63	35	49	18	0.21	-0.52	0.12	0.21	41	37.72	109	83	44	0	0	2	0
	BUFFALO	57	44	67	41	51	17	0.40	-0.50	0.32	0.08	13	33.36	94	94	57	0	0	2	0
	ROCHESTER	58	39	67	32	48	15	0.22	-0.45	0.16	0.18	38	40.54	136	89	52	0	1	3	0
	SYRACUSE	58	37	67	29	48	15	0.18	-0.63	0.09	0.17	30	35.62	98	86	45	0	2	4	0
NC	ASHEVILLE	68	33	70	30	50	8	0.07	-0.76	0.00	0.07	12	44.83	101	100	43	0	4	1	0
	CHARLOTTE	73	42	75	36	57	11	0.00	-0.76	0.00	0.00	0	37.77	94	92	42	0	0	0	0
	GREENSBORO	71	41	73	36	56	12	0.07	-0.66	0.00	0.07	13	43.04	108	93	46	0	0	1	0
	HATTERAS	69	57	71	51	63	11	0.02	-1.03	0.01	0.01	1	58.04	111	91	66	0	0	2	0
	RALEIGH	74	42	77	35	58	12	0.00	-0.71	0.00	0.00	0	49.19	127	98	45	0	0	0	0
	WILMINGTON	77	47	79	40	62	10	0.02	-0.76	0.01	0.01	2	59.65	117	98	41	0	0	2	0
ND	BISMARCK	45	25	60	23	35	16	0.01	-0.10	0.01	0.01	13	23.48	156	95	61	0	7	1	0
	DICKINSON	46	28	65	22	37	15	0.00	-0.08	0.00	0.00	0	24.62	156	93	56	0	7	0	0
	FARGO	40	27	46	20	34	16	0.00	-0.14	0.00	0.00	0	31.54	167	97	75	0	6	0	0
	GRAND FORKS	32	21	38	13	27	10	0.01	-0.13	0.00	0.01	10	23.56	133	98	82	0	7	1	0
	JAMESTOWN	40	26	47	18	33	15	0.00	-0.11	0.00	0.00	0	21.65	131	96	70	0	7	0	0
	WILLISTON	40	23	50	8	32	13	0.23	0.12	0.15	0.23	288	17.31	131	93	67	0	7	2	0
OH	AKRON-CANTON	61	47	66	37	54	18	0.14	-0.58	0.12	0.02	4	38.15	111	95	60	0	0	2	0
	CINCINNATI	65	48	71	30	57	19	0.21	-0.57	0.13	0.08	15	47.63	123	90	55	0	1	2	0
	CLEVELAND	62	50	67	39	56	20	0.12	-0.63	0.12	0.00	0	30.90	91	87	56	0	0	1	0
	COLUMBUS	64	48	69	36	56	20	0.06	-0.67	0.03	0.01	2	34.33	96	90	57	0	0	2	0
	DAYTON	63	49	67	39	56	20	0.03	-0.69	0.02	0.02	4	37.12	109	84	58	0	0	2	0
	MANSFIELD	61	48	65	35	54	20	0.19	-0.61	0.17	0.00	0	35.93	97	86	56	0	0	1	0

Based on 1961-90 normals

Weather Data for the Week Ending December 5, 1998

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP, °F		PRECIP.	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	TOLEDO	61	48	64	36	55	22	0.04	-0.68	0.04	0.00	0	31.93	104	86	54	0	0	1	0
	YOUNGSTOWN	61	49	65	41	55	21	0.13	-0.59	0.12	0.01	2	35.22	101	84	49	0	0	2	0
OK	OKLAHOMA CITY	70	50	73	40	60	17	2.09	1.73	1.19	1.21	465	34.92	108	95	59	0	0	2	2
	TULSA	72	53	75	43	62	19	1.71	1.12	0.83	0.87	212	45.83	118	95	57	0	0	4	2
OR	ASTORIA	47	37	53	30	42	-2	5.37	2.93	2.30	4.40	257	77.01	134	97	74	0	1	7	4
	BURNS	39	21	54	6	30	2	0.70	0.42	0.18	0.44	220	15.60	173	92	62	0	6	7	0
	EUGENE	47	37	52	32	42	0	4.02	1.98	1.59	1.91	135	43.78	104	97	77	0	1	6	3
	MEDFORD	46	34	52	26	40	0	1.08	0.29	0.32	0.60	109	28.09	175	97	60	0	3	5	0
	PENDLETON	45	34	53	31	39	3	0.74	0.35	0.37	0.40	143	13.46	125	96	57	0	3	4	0
	PORTLAND	47	40	52	34	43	1	2.78	1.39	1.10	1.28	131	40.61	130	94	71	0	0	7	1
	SALEM	46	38	51	33	42	1	3.45	1.86	1.11	1.75	158	44.02	131	96	76	0	0	7	3
PA	ALLENTOWN	61	39	71	32	50	13	0.01	-0.85	0.01	0.01	2	39.08	96	95	55	0	1	1	0
	ERIE	63	50	68	44	57	20	0.50	-0.41	0.28	0.33	51	30.36	79	83	50	0	0	3	0
	MIDDLETOWN	66	40	73	30	53	15	0.00	-0.79	0.00	0.00	0	45.65	121	87	36	0	1	0	0
	PHILADELPHIA	65	45	73	37	55	14	0.01	-0.78	0.00	0.01	2	30.85	80	88	44	0	0	1	0
	PITTSBURGH	63	48	68	37	55	19	0.06	-0.61	0.03	0.03	6	32.43	94	86	46	0	0	2	0
	WILKES-BARRE	61	45	68	37	53	18	0.13	-0.52	0.13	0.13	29	34.06	100	85	48	0	0	1	0
	WILLIAMSPORT	62	38	68	26	50	14	0.15	-0.63	0.13	0.15	28	39.39	103	96	52	0	2	3	0
RI	PROVIDENCE	58	40	70	36	49	11	0.02	-1.02	0.02	0.02	3	51.35	123	91	49	0	0	1	0
SC	BEAUFORT	79	54	80	45	67	12	0.07	-0.56	0.00	0.00	0	47.50	98	99	56	0	0	1	0
	CHARLESTON	78	51	79	42	64	10	0.05	-0.59	0.01	0.04	9	63.56	130	100	48	0	0	5	0
	COLUMBIA	77	44	81	37	61	11	0.00	-0.72	0.00	0.00	0	44.20	94	96	38	0	0	0	0
	GREENVILLE	72	46	73	40	59	12	0.00	-0.90	0.00	0.00	0	47.75	100	94	47	0	0	0	0
SD	ABERDEEN	50	28	58	27	39	18	0.02	-0.09	0.01	0.02	25	28.34	156	97	56	0	7	2	0
	HURON	56	29	66	26	43	19	0.05	-0.06	0.03	0.05	63	25.03	127	96	50	0	5	2	0
	RAPID CITY	55	27	69	15	41	13	0.02	-0.09	0.00	0.02	25	21.06	130	81	42	0	5	1	0
	SIOUX FALLS	56	32	63	26	44	20	0.06	-0.13	0.05	0.06	43	30.96	133	97	60	0	5	2	0
TN	BRISTOL	66	35	69	28	50	9	0.09	-0.65	0.09	0.09	17	38.70	102	96	45	0	3	1	0
	CHATTANOOGA	74	43	76	36	58	13	0.01	-1.16	0.01	0.01	1	47.78	97	97	42	0	0	1	0
	KNOXVILLE	69	42	71	35	55	12	0.17	-0.82	0.17	0.17	24	48.13	111	96	49	0	0	1	0
	MEMPHIS	71	54	76	39	63	16	0.64	-0.71	0.39	0.39	40	49.00	103	99	61	0	0	2	0
	NASHVILLE	72	47	77	36	59	15	1.03	-0.04	0.72	0.94	124	45.13	104	94	50	0	0	3	1
TX	ABILENE	73	50	76	39	62	13	0.68	0.42	0.59	0.60	333	13.11	56	93	49	0	0	3	1
	AMARILLO	68	42	72	36	54	14	0.59	0.48	0.29	0.34	425	17.08	89	88	42	0	0	2	0
	AUSTIN	78	64	81	57	71	16	0.15	-0.31	0.15	0.15	45	37.70	124	92	53	0	0	1	0
	BEAUMONT	79	63	81	57	71	14	0.15	-0.96	0.12	0.02	3	54.98	103	98	65	0	0	4	0
	BROWNSVILLE	84	68	86	62	76	11	0.02	-0.26	0.01	0.02	10	19.66	77	97	58	0	0	2	0
	CORPUS CHRISTI	81	68	84	63	74	13	0.02	-0.26	0.01	0.02	10	29.92	103	98	68	0	0	2	0
	DEL RIO	75	54	78	45	65	9	0.03	-0.12	0.01	0.02	18	28.83	162	96	60	0	0	3	0
	EL PASO	61	41	66	35	51	5	0.59	0.47	0.33	0.26	289	6.70	79	95	46	0	0	2	0
	FORT WORTH	75	56	77	48	66	15	2.06	1.62	1.48	1.53	494	31.35	97	97	59	0	0	4	2
	GALVESTON	77	68	79	63	73	13	0.09	-0.75	0.06	0.06	14	48.39	123	98	64	0	0	4	0
	HOUSTON	81	62	83	54	71	15	0.33	-0.48	0.23	0.09	16	50.86	118	97	59	0	0	3	0
	LUBBOCK	67	43	73	39	55	11	0.56	0.43	0.29	0.27	270	13.08	72	91	44	0	0	3	0
	MIDLAND	71	47	77	38	59	11	0.18	0.05	0.02	0.02	20	4.58	32	86	31	0	0	2	0
	SAN ANGELO	74	49	79	37	62	12	0.00	-0.19	0.00	0.00	0	12.50	63	96	44	0	0	0	0
	SAN ANTONIO	78	62	81	53	70	15	0.05	-0.38	0.02	0.05	17	41.76	140	93	55	0	0	2	0
	VICTORIA	80	64	82	58	72	14	0.39	-0.09	0.31	0.37	112	43.14	121	99	65	0	0	4	0
	WACO	76	59	79	48	67	15	1.21	0.74	0.75	0.48	139	31.48	103	97	62	0	0	4	1
	WICHITA FALLS	73	51	77	44	62	16	1.22	0.92	1.07	1.09	491	22.18	80	93	56	0	0	3	1
UT	SALT LAKE CITY	55	37	64	17	46	12	0.70	0.38	0.70	0.70	292	23.23	154	77	35	0	2	1	1
VT	BURLINGTON	52	38	60	26	44	15	0.15	-0.49	0.00	0.15	34	50.20	155	84	48	0	3	2	0
VA	LYNCHBURG	70	38	75	29	54	11	0.07	-0.67	0.00	0.07	13	44.42	116	91	40	0	1	1	0
	NORFOLK	73	47	75	41	60	12	0.00	-0.68	0.00	0.00	0	49.43	118	92	47	0	0	0	0
	RICHMOND	73	43	77	33	58	14	0.00	-0.72	0.00	0.00	0	41.74	103	81	36	0	0	0	0
	ROANOKE	68	43	73	32	56	14	0.04	-0.65	0.00	0.04	8	42.74	111	74	35	0	1	1	0
	WASH/DULLES	71	38	74	30	54	15	0.00	-0.75	0.00	0.00	0	35.90	96	88	38	0	4	0	0
WA	HANFORD	45	30	55	18	38	--	0.36	--	0.34	0.02	--	5.95	--	94	61	0	3	2	0
	OLYMPIA	44	35	48	33	39	0	3.18	1.28	1.64	2.28	173	47.64	109	100	67	0	0	7	2
	QUILLAYUTE	44	34	47	31	39	-3	5.58	2.02	2.29	4.76	190	87.69	95	99	82	0	3	7	3
	SEATTLE-TACOMA	44	38	47	36	41	-1	1.65	0.24	0.60	1.01	103	36.02	112	97	71	0	0	6	1
	SPOKANE	37	30	44	26	34	3	1.57	1.01	0.55	1.07	274	15.55	107	98	78	0	5	6	1
	YAKIMA	41	24	48	16	32	0	0.58	0.28	0.35	0.21	95	8.22	121	98	71	0	7	4	0
WV	BECKLEY	62	38	69	29	50	12	0.15	-0.57	0.12	0.14	27	44.42	116	92	44	0	2	3	0
	CHARLESTON	67	39	73	28	53	12	0.14	-0.67	0.12	0.12	21	45.30	114	91	41	0	1	2	0
	ELKINS	64	29	71	18	46	10	0.11	-0.69	0.03	0.11	19	44.20	105	93	40	0	5	2	0
	HUNTINGTON	68	44	73	30	56	15	0.13	-0.65	0.09	0.09	16	41.04	106	87	45	0	1	2	0
WI	EAU CLAIRE	59	36	63	27	48	25	0.00	-0.28	0.00	0.00	0	28.95	94	97	56	0	3	0	0
	GREEN BAY	58	38	63	30	48	22	0.21	-0.21	0.16	0.05	17	28.52	103	98	67	0	1	3	0
	MADISON	60	45	64	32	53	25	0.09	-0.38	0.09	0.00	0	39.65	135	94	64	0	1	1	0
	MILWAUKEE	61	45	66	36	53	23	0.12	-0.46	0.08	0.04	10	33.80	109	93	67	0	0	3	0
WY	CASPER	53	31	59	14	42	16	0.00	-0.17	0.00	0.00	0	14.41	121	71	28	0	2	0	0
	CHEYENNE	57	30	65	17	44	14	0.02	-0.09	0.00	0.02	25	10.38	74	64	20	0	4	1	0
	LANDER	50	29	59	12	40	16	0.05	-0.10	0.00	0.05	50	17.10	136	80	29	0	6	1	0
	SHERIDAN	49	24	63	6	37	11	0.05	-0.12	0.04	0.05	42	17.29	124	87	43	0	7	2	0

NOTE: These data are preliminary and subject to change. In the past, precipitation totals from a number of stations have been incomplete.

November Weather and Crop Summary

Weather

Above-normal temperatures prevailed nearly nationwide despite several notable low-pressure systems, including Tropical Storm Mitch (November 4-5) in southern Florida and a "super storm" (November 10-11) across the northern Plains and upper Midwest. In addition, heavy rainfall induced early-month flooding in parts of the central Plains and re-introduced lowland flooding at mid-month to portions of eastern Texas. Increasingly stormy weather arrived in the Pacific Northwest during the last 2 weeks of November, improving soil moisture in interior sections, but saturating areas west of the Cascades with record or near-record rainfall. In contrast, warm, dry weather returned to the Plains during the second half of November, reducing soil moisture to generally favorably levels. Long-term drought persisted, however, in portions of the southern Plains, including western Texas. Intensifying drought stretched through a fifth month in the Mid-Atlantic region, extending southward into parts of the Southeast.

Monthly temperatures ranged from 2 to 6°F above normal in the Plains, Midwestern, Northwestern, and Southeastern States, aided by a warm spell that produced more than 250 daily-record highs during the last 10 days of November. Near-normal readings prevailed in the Northeastern and Mid-Atlantic regions, owing to an early-month cool wave. Temperatures averaged as much as 3°F below normal, however, in California, plagued by persistent coolness for most of 1998.

Monthly precipitation totaled more than 200 percent of normal in many areas from Washington southward to northern California, and eastward to western Montana. Precipitation also topped twice the normal on most of the northern and central Plains, in eastern Texas, and across southern Florida. In contrast, less than 50 percent of the normal monthly rainfall dampened southern California, the southern High Plains, and large portions of the Middle Atlantic and Southeastern States.

Early in the month, heavy rain and flooding persisted across parts of Kansas and Oklahoma. October 30 - November 1 rainfall topped 10 inches in a few southern Kansas locations, including Anthony (10.47 inches) and Madison (10.15 inches). Elsewhere in southern Kansas, record crests were established on November 1 along the Arkansas River at Derby (breaking a July 1993 standard) and the Cottonwood River at Plymouth (eclipsing a June 1965 high-water mark). Two days later, records on the Arkansas River (11.89 feet above flood stage) and Walnut River (14.45 feet above flood stage) converged on Arkansas City, KS, causing extensive flooding.

Meanwhile, the remnant circulation of Hurricane Mitch emerged over the southwestern Gulf of Mexico on November 3 and regained tropical storm status. Mitch then accelerated northeastward, crossing southern Florida on the morning of November 5 with maximum sustained near 60 mph. A peak gust to 73 mph was recorded at Fowey Rocks Lighthouse, near Miami. Despite the storm's rapid movement (about 25 mph), November 4-5 rainfall reached 6.06 inches near the point of landfall at Ft. Myers, and 6.73 inches at West Palm Beach, just south of where Mitch departed Florida's east coast.

Just a few days later, on November 9, a rapidly developing low-pressure system reached the central Plains, turning northeastward a day later across the western Great Lakes region. The "super storm" produced record-low barometric pressures on the 10th in Minnesota (28.43 inches in Austin and Albert Lea) and Iowa (28.54 inches in Spencer and Estherville). Across the northwestern Corn Belt, wind gusts of 60 to 70 mph, with locally higher readings, accompanied by heavy snowfall, halted fieldwork and lodged unharvested corn. On Lake Michigan, wave heights on the night of November 10-11 reached 20.3 feet at a buoy 45 miles west of Holland, MI. November 9-10 snowfall totaled 13.4 inches in Sioux Falls, SD. Rapid City, SD secured their second-snowiest November (21.3 inches) by November 10, but received no snow thereafter.

Immediately following the "super storm," a moisture-laden system crossed the South. From November 12-14, heavy rain fell in eastern Texas, submerging some of the same lowlands struck by severe flooding in mid- to late October. Storm-total rainfall reached 8.44 inches in Victoria, TX, boosting their monthly rainfall to a November-record 10.11 inches (413 percent of normal). November rainfall totaled 10.21 inches in Houston, aided by a 4.68-inch amount on November 12. The San Bernard River at Boling, TX, which on October 21 had surged to a record 24.7 feet above flood stage, crested on November 24 more than 5 feet below the high-water mark. Dry weather arrived in eastern Texas and elsewhere in the Plains States after mid-month. During the second half of November, only 0.26 inch dampened Houston, while 0.07 inch fell on Victoria.

Drought continued through November in portions of the southern Plains, including much of western Texas. Abilene, TX received 1.06 inches (72 percent of normal) during the month, sealing their eighth consecutive month with sub-normal precipitation. Midland, TX netted 0.13 inches (19 percent of normal) during November, boosting their year-to-date total to only 4.56 inches (32 percent). Midland's driest year on record occurred in 1951 (4.24 inches), followed by 1933 (6.76 inches). In addition to the dryness, Midland entered December without their first autumn freeze for only the second time on record; their latest first freeze occurred on December 6, 1954. In Lubbock, TX, autumn minimum temperatures remained at or above 30°F through November for the first time since 1933. Through November, no autumn freeze occurred in Oklahoma City, OK. Prior to this year, Oklahoma City's latest first freeze was observed on November 30, 1934. In the east, however, an early-month cold snap in the wake of Tropical Storm Mitch delivered the season's first freeze to many areas away from the Gulf Coast. On November 7, sub-freezing temperatures were noted as far south as Tallahassee, FL (31°F).

While weather quieted across much of the Nation after mid-month, increasingly stormy conditions overspread the Pacific Northwest as far south as northern California. November rainfall records were established in Astoria, OR (19.60 inches,

or 195 percent of normal) and Seattle, WA (11.62 inches, or 199 percent), eclipsing totals from 1995 and 1990, respectively. Seattle's total represented their highest monthly rainfall since 11.85 inches fell during December 1979. Elsewhere in Oregon, Medford's total of 7.67 inches was less than 1 inch shy of their November record, set in 1942. In northern California, Eureka netted 14.09 inches (219 percent of normal) during the month.

In contrast, drought intensified across the Mid-Atlantic region and in parts of the Southeast. Five-month (July-November) rainfall deficits climbed to 11.45 inches in Washington, DC and 11.53 inches in Baltimore, MD. Since July 1, rainfall in both locations totaled under 6 inches, or 33 percent of normal. Long-term dryness also persisted in parts of the Great Lakes region and in portions of the Ohio and Tennessee Valleys. In Michigan, Flint's April-November precipitation totaled 12.78 inches (55 percent of normal), their second-driest such period on record, behind 12.70 inches in 1938. In the Ohio Valley, August-November rainfall stood at 8.16 inches (53 percent of normal) in Chattanooga, TN and 5.26 inches (40 percent) in Lexington, KY. Farther south, November rainfall was as low as 0.16 inches (6 percent of normal) in Charleston, SC and 0.30 inches (14 percent) in Savannah, GA.

While stormy weather assailed the Pacific Northwest after mid-month, much of the remainder of the Nation basked in unusual warmth. The mild spell sealed a virtually snowless month in many areas. In Kansas, Topeka's previous snow-free November occurred in 1980. Only 0.2 inch whitened Grand Rapids, MI, their lowest November snowfall since 1984. Ft. Wayne, IN experienced only their second snowless November on record, along with 1946. In Wisconsin, both LaCrosse (63, 62, 65, and 63°F) and Madison (65, 62, 64, and 63°F) closed the month with four consecutive daily-record highs. On November 29, lows of 54°F in Rochester, MN and 57°F in LaCrosse were higher than the previous record high temperatures for the date. Chicago, IL closed November with highs above 60°F on 5 consecutive days for the first time on record.

Alaskan temperatures ranged from near normal in southern areas to as much as 6°F above normal in the west. Along the Arctic coast at Barrow, an unusually late ocean freeze-up resulted in a monthly temperature departure of +16°F. Below-normal precipitation was observed at most Alaskan reporting stations. In southern Alaska, totals included 6.34 inches (42 percent of normal) in Yakutat and 1.72 inches (35 percent) in Juneau. Meanwhile in Hawaii, moisture supplies continued to improve in windward (east-facing) locations, although dry pockets persisted elsewhere. On the Big Island, monthly rainfall reached 15.57 inches (107 percent of normal) in Hilo and 25.80 inches (145 percent) in Glenwood. In contrast, only 0.85 inches (28 percent of normal) dampened Honolulu, boosting their year-to-date rainfall to 3.37 inches (18 percent).

Fieldwork

A large mass of cold air arrived from Canada early in the month and brought the first major snowstorm days later. Harvest activities were halted and wheat fields were blanketed with at least a few inches of snow in the northern Great Plains. A few days later, another storm delivered a mixture of snow, and freezing rain in the northern Plains. As the system moved eastward, it produced heavy rains and damaging winds in parts of the Corn Belt and Mississippi Valley. During the second half of the month, temperatures averaged well above normal across most of the Nation, aiding development of winter wheat in the central and southern Great Plains, Mississippi Delta, southern and eastern Corn Belt, and Southeast. Dry conditions also prevailed over much of the Nation during the last half of the month, aiding harvest efforts and fall tillage operations. Harvest activities slowly resumed late in the month in the northern Plains and upper Mississippi Valley following earlier storms.

The harvest of the Nation's corn and soybean crops was nearing completion as the month began. Progress for both exceeded the average due to early ripening and good harvest weather. Nationally, the corn harvest was more than 1 week ahead of normal, with some areas of the northern Corn Belt more than 2 weeks ahead of average. The soybean harvest pace slowed as the end of the season approached, and was less than 1 week ahead of the 5-year average as the month began. Favorable weather during the month allowed the corn and soybean harvest pace to continue ahead of normal despite isolated delays. The corn harvest briefly fell behind normal in parts the central Great Plains near mid-month, but warm, dry weather returned and the harvest pace quickly moved back ahead of the 5-year average.

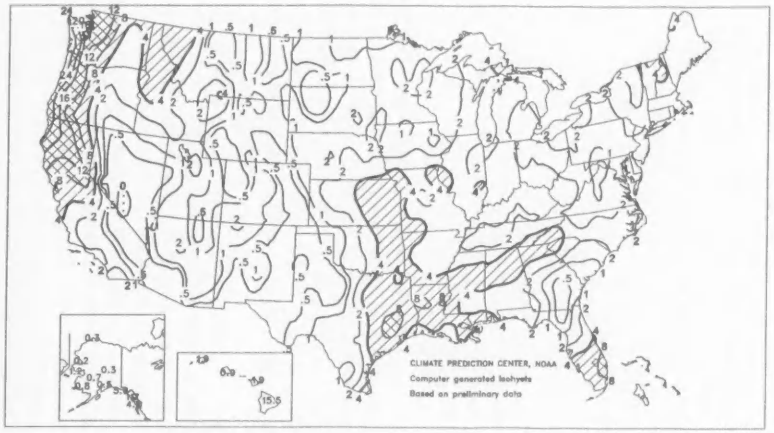
Most of the Nation's winter wheat was seeded as the month began, but progress was slightly behind normal. Planting was virtually complete in the northern Plains and Rocky Mountains, while growers in the Southeast and Southwest were just starting to gain momentum. By mid-month, most planting in the central and southern Great Plains and eastern Corn Belt was complete. Rain delayed planting efforts in parts of the southern Corn Belt. Dry soils forced growers in the Southeast to delay planting until early-month showers partially relieved topsoil dryness. Emergence also lagged normal, partly because of late planting and partly due to dry soils, especially in the Great Plains and Southeast. Emergence improved in the Great Plains and Mississippi Delta after early-month soaking rains. Warm weather during the last half of the month stimulated growth in the central and southern Great Plains, Corn Belt, and lower Mississippi Valley.

The cotton harvest began the month more than 1 week ahead of normal and remained ahead of the average throughout the month. Mostly dry conditions allowed growers in the lower Mississippi Valley to complete their harvest by mid-month. Dry weather also aided harvest in the Southeast, but harvest progress lagged in California due to the late-maturing crop.

Sorghum harvest progressed slightly ahead of normal until mid-month, when rains slowed progress in the Great Plains and southern Corn Belt. Dry conditions aided progress during the second half of the month, except in the northern Plains, where progress was halted by early-month winter storms. Harvest resumed late in the month as muddy fields slowly dried. The peanut harvest also progressed ahead of normal, as dry weather prevailed in most peanut producing regions. Florida growers finished harvesting far ahead of the 5-year average.

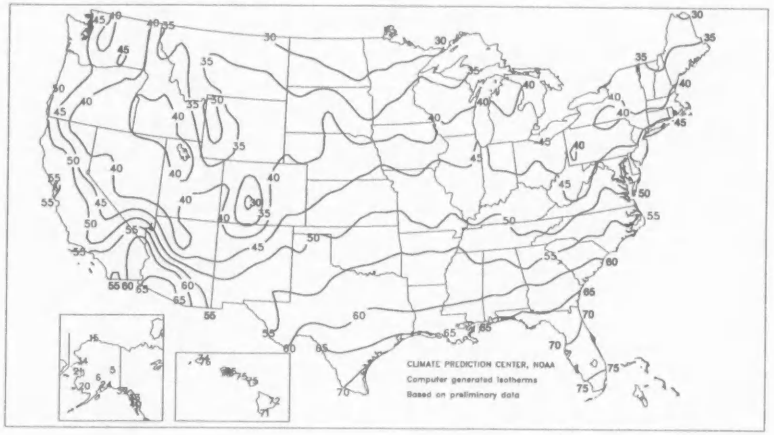
Total Precipitation (Inches)

NOV 1998



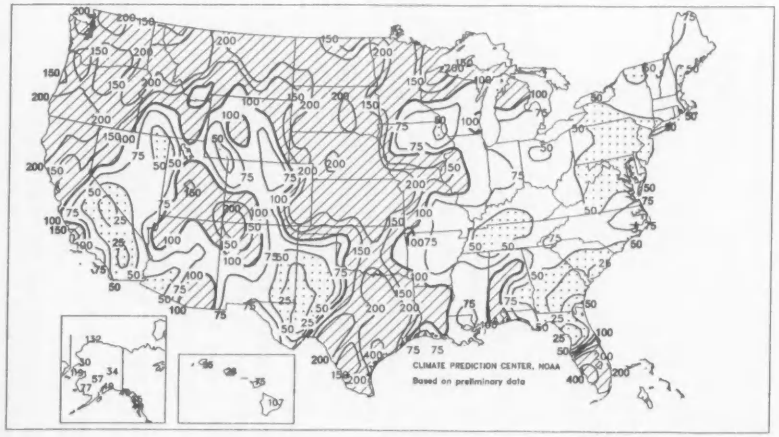
Average Temperature (°F)

NOV 1998



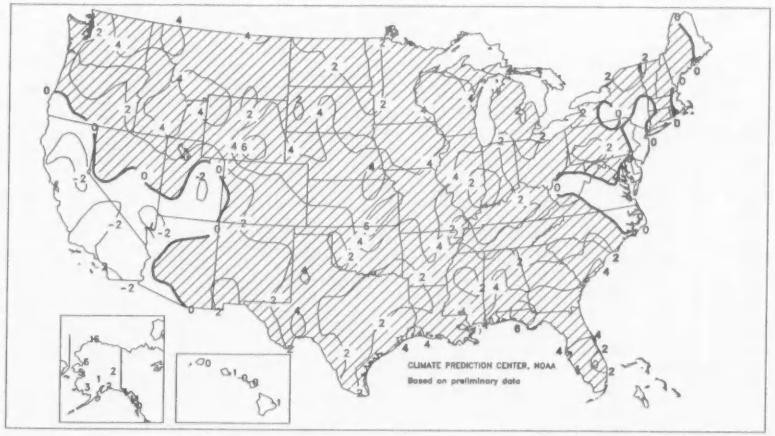
Percent Of Normal Precipitation

NOV 1998



Departure of Average Temperature from Normal (°F)

NOV 1998



TEMPERATURE AND PRECIPITATION SUMMARY
November 1998

STATES AND STATIONS		TEMP, °F		PRECIP.	
		AVERAGE	DEPARTURE	TOTAL	DEPARTURE
AL	BIRMINGHAM	57	4	4.36	0.03
	HUNTSVILLE	54	2	3.02	-1.84
	MOBILE	63	4	4.95	0.85
	MONTGOMERY	60	3	0.91	-3.17
AK	ANCHORAGE	24	2	0.54	-0.56
	BARROW	15	17	0.33	0.07
	FAIRBANKS	5	2	0.28	-0.55
	JUNEAU	33	1	1.72	-3.18
	KODIAK	36	2	8.58	2.82
	NOME	21	5	1.23	0.19
AZ	FLAGSTAFF	37	0	1.76	-0.19
	PHOENIX	62	0	0.19	-0.47
	TUCSON	60	1	0.67	0.01
	YUMA	64	0	0.09	-0.16
	FORT SMITH	54	4	3.41	-0.58
AR	LITTLE ROCK	56	3	2.31	-2.89
	BAKERSFIELD	52	-3	0.45	-0.24
CA	EUREKA	51	0	14.57	8.09
	FRESNO	53	-1	0.38	-1.02
	LOS ANGELES	59	-2	1.21	-0.56
	REDDING	50	-2	9.30	4.09
	SACRAMENTO	53	-1	3.60	0.87
	SAN DIEGO	59	-3	0.70	-0.74
	SAN FRANCISCO	54	-1	2.33	-0.53
	ALAMOSA	34	4	0.35	-0.06
CO	CO SPRINGS	42	4	0.44	-0.06
	DENVER	42	3	0.44	-0.44
	GRAND JUNCTION	40	0	0.42	-0.28
	PUEBLO	44	4	0.46	-0.01
	BRIDGEPORT	45	0	1.22	-2.60
CT	HARTFORD	41	-1	2.34	-1.71
	WASHINGTON	50	0	0.91	-2.21
DE	WILMINGTON	48	0	1.27	-2.00
FL	DAYTONA BEACH	70	5	1.66	-1.18
FL	JACKSONVILLE	66	5	2.39	0.20
	KEY WEST	77	2	2.30	-0.45
	MIAMI	76	2	6.66	3.99
	ORLANDO	71	3	1.67	-0.64
	PENSACOLA	65	4	3.95	0.42
	TALLAHASSEE	65	5	1.43	-2.44
	TAMPA	72	5	0.38	-1.40
	WEST PALM BEACH	74	1	7.65	2.96
GA	ATHENS	56	2	2.06	-1.60
	ATLANTA	56	3	1.87	-1.99
	AUGUSTA	58	3	0.57	-1.90
	COLUMBUS	61	4	0.88	-2.67
	MACON	59	3	0.70	-2.02
	SAVANNAH	62	3	0.30	-1.86
HI	HILO	72	-2	15.57	1.07
	HONOLULU	78	0	0.85	-2.16
	KAHULUI	75	0	1.94	-0.64
	LIHUE	76	0	1.90	-3.56
ID	BOISE	44	4	0.97	-0.49
	LEWISTON	43	2	2.67	1.52
	POCATELLO	39	3	1.30	0.14
IL	CHICAGO/O'HARE	46	5	2.00	-0.91
	MOLINE	44	4	2.76	0.25
	PEORIA	45	4	2.63	-0.07
	ROCKFORD	42	4	2.32	-0.25
	SPRINGFIELD	46	3	2.81	0.27
IN	EVANSVILLE	48	2	2.78	-0.95
	FORT WAYNE	43	2	1.65	-1.14
	INDIANAPOLIS	45	2	2.52	-0.71
	SOUTH BEND	43	3	1.24	-2.04
IA	BURLINGTON	47	7	3.70	1.38
	CEDAR RAPIDS	42	8	0.88	-1.07
	DES MOINES	42	3	1.62	-0.17
	DUBUQUE	40	4	1.31	-1.38
	SIOUX CITY	40	4	1.80	0.72
	WATERLOO	40	4	1.24	-0.57
KS	CONCORDIA	46	5	4.24	3.11
	DODGE CITY	47	4	2.02	1.19
	GOODLAND	43	4	2.11	1.42
	TOPEKA	49	6	5.64	3.72
	WICHITA	49	5	3.20	1.61
KY	JACKSON	50	2	2.98	-1.22
	LEXINGTON	47	1	1.96	-1.43
	LOUISVILLE	51	4	2.16	-1.54
	PADUCAH	51	3	2.63	-1.69
LA	BATON ROUGE	63	3	3.05	-1.26
	LAKE CHARLES	64	4	2.92	-1.34
	NEW ORLEANS	65	4	3.40	-1.02
	SHREVEPORT	58	1	4.59	0.14
ME	CARIBOU	30	-1	2.10	-1.45
	PORTLAND	39	1	2.04	-3.14
MD	BALTIMORE	46	-1	1.13	-2.19
MA	BOSTON	44	-1	1.38	-2.85
	WORCESTER	40	1	2.30	-2.17
MI	ALPENA	38	2	2.24	0.03
	GRAND RAPIDS	42	4	2.27	-1.06
	HOUGHTON LAKE	37	2	2.53	0.29
	LANSING	41	2	1.63	-1.00
	MARQUETTE	34	5	2.89	-0.28
	MUSKEGON	42	3	2.30	-0.83
MN	DULUTH	32	4	3.83	2.03
	INT'L FALLS	27	2	1.70	0.56
	MINNEAPOLIS	37	4	1.32	-0.23
	ROCHESTER	36	4	1.15	-0.46
	ST. CLOUD	34	4	1.53	0.26
MS	JACKSON	59	3	4.32	-0.49
	MERIDIAN	58	3	3.52	-0.96
	TUPELO	55	2	3.20	-1.64
MO	COLUMBIA	48	4	1.87	-1.06
	KANSAS CITY	48	5	4.30	2.38
	SAINT LOUIS	49	3	2.72	-0.58
	SPRINGFIELD	49	3	3.60	-0.15
MT	BILLINGS	38	3	0.63	-0.22
	BUTTE	33	5	0.74	0.21
	GLASGOW	33	4	0.68	0.41
	GREAT FALLS	36	2	0.96	0.31
	KALISPELL	36	5	1.75	0.45
	MILES CITY	36	4	0.55	0.03
	MISSOULA	36	3	3.00	2.19
NE	GRAND ISLAND	42	5	2.20	1.16
	LINCOLN	44	5	3.20	1.92
	NORFOLK	40	4	2.05	1.04
	NORTH PLATTE	39	4	1.31	0.65
	OMAHA	44	5	1.48	-0.01
	SCOTTSBLUFF	40	3	1.20	0.58
	VALENTINE	39	5	1.43	0.83
NV	ELY	36	2	0.54	-0.12
	LAS VEGAS	54	0	0.33	-0.11
	RENO	42	2	0.77	-0.09
	WINNEMUCCA	39	1	0.89	-0.04
NH	CONCORD	38	1	2.20	-1.45
NJ	NEWARK	47	0	0.86	-3.05
NM	ALBUQUERQUE	46	2	0.48	0.04
NY	ALBANY	40	0	1.65	-1.59
	BINGHAMTON	39	1	1.43	-1.85
	BUFFALO	42	1	1.61	-2.23
	ROCHESTER	42	1	1.41	-1.49
	SYRACUSE	41	1	2.06	-1.66
NC	ASHEVILLE	49	1	2.76	-0.78
	CHARLOTTE	53	1	2.28	-0.93
	GREENSBORO	51	1	1.55	-1.43
	HATTERAS	57	0	0.85	-4.13
	RALEIGH	51	0	2.40	-0.58
	WILMINGTON	57	0	0.86	-2.15
ND	BISMARCK	31	2	1.40	0.90
	DICKINSON	34	4	0.75	0.31
	FARGO	29	1	1.75	1.01
	GRAND FORKS	26	-1	1.73	1.07
	JAMESTOWN	29	1	1.10	0.59
	WILLISTON	30	2	1.27	0.80
OH	AKRON-CANTON	43	1	2.15	-0.87
	CINCINNATI	45	1	2.33	-1.14
	CLEVELAND	44	2	1.59	-1.58
	COLUMBUS	45	3	1.99	-1.23
	DAYTON	45	2	1.59	-1.48
	MANSFIELD	43	1	1.55	-1.95
	TOLEDO	42	3	1.54	-1.27
	YOUNGSTOWN	42	1	1.99	-1.12
OK	OKLAHOMA CITY	53	4	3.09	1.11
	TULSA	53	4	3.26	0.13
OR	ASTORIA	47	0	19.60	9.54
	BURNS	35	1	2.28	1.04
	EUGENE	47	1	11.35	3.03
	MEDFORD	46	2	7.67	4.45
	PENDLETON	45	4	2.31	0.74
	PORTLAND	49	3	11.03	5.70
	SALEM	48	3	10.56	4.30
PA	ALLENTOWN	43	-1	1.39	-2.50
	ERIE	45	2	1.80	-2.20
	MIDDLETOWN	45	1	0.92	-2.58
	PHILADELPHIA	48	1	1.18	-2.16
	PITTSBURGH	44	2	1.50	-1.34
	WILKES-BARRE	42	3	0.95	-2.07
	WILLIAMSPORT	42	0	1.15	-2.58
RI	PROVIDENCE	43	-1	2.76	-1.67
SC	BEAUFORT	63	4	0.84	-1.52
	CHARLESTON	62	3	0.16	-2.32
	COLUMBIA	57	3	1.11	-1.79
	GREENVILLE	54	2	2.39	-1.27
SD	ABERDEEN	33	3	1.41	0.82
	HURON	36	4	1.89	1.17
	RAPID CITY	36	2	1.08	0.52
	SIOUX FALLS	35	2	2.20	1.11
TN	BRISTOL	47	0	1.44	-1.50
	CHATTANOOGA	53	2	3.16	-1.45
	KNOXVILLE	50	1	2.51	-1.24
	MEMPHIS	56	3	2.61	-2.49
	NASHVILLE	52	2	1.30	-2.82
TX	ABILENE	57	2	1.06	-0.42
	AMARILLO	49	3	0.34	-0.35
	AUSTIN	63	2	4.04	1.67
	BEAUMONT	64	3	2.91	-1.93
	BROWNSVILLE	72	3	3.72	2.21
	CORPUS CHRISTI	69	3	2.65	1.06
	DEL RIO	62	2	2.01	1.09
	EL PASO	55	3	0.34	-0.13
	FORT WORTH	58	1	4.91	2.82
	GALVESTON	67	4	2.67	-0.74
	HOUSTON	64	3	10.21	6.42
	LUBBOCK	52	3	0.29	-0.45
	MIDLAND	56	4	0.13	-0.56
	SAN ANGELO	57	2	1.06	-0.02
	SAN ANTONIO	62	2	3.41	0.80
	VICTORIA	65	2	10.11	7.66
	WACO	59	2	3.50	1.07
	WICHITA FALLS	55	3	2.27	0.73
UT	SALT LAKE CITY	43	2	1.27	-0.03
VT	BURLINGTON	39	3	1.02	-2.11
VA	LYNCHBURG	48	-1	1.12	-2.02
	NORFOLK	52	-1	1.83	-1.02
	RICHMOND	49	0	1.30	-1.86
	ROANOKE	49	1	0.86	-2.33
	WASH/DULLES	45	0	1.21	-2.10
WA	HANFORD	46	--	1.31	-9.99
	OLYMPIA	45	2	14.95	6.89
	QUILLAYUTE	46	2	26.08	11.34
	SEATTLE-TACOMA	47	1	11.62	5.79
	SPOKANE	40	5	3.78	1.63
	YAKIMA	41	2	0.84	-0.20
WV	BECKLEY	44	0	2.64	-0.34
	CHARLESTON	46	-1	1.89	-1.69
	ELKINS	40	-1	1.40	-1.93
	HUNTINGTON	47	1	2.31	-0.99
WI	EAU CLAIRE	38	5	1.36	-0.16
	GREEN BAY	39	5	1.67	-0.50
	MADISON	41	5	1.95	-0.17
	MILWAUKEE	43	5	2.91	0.39
WY	CASPER	38	5	0.45	-0.32
	CHEYENNE	39	4	0.31	-0.22
	LANDER	34	3	1.27	0.47
	SHERIDAN	35	2	0.84	0.02
PR	SAN JUAN	--	--	6.74	0.80

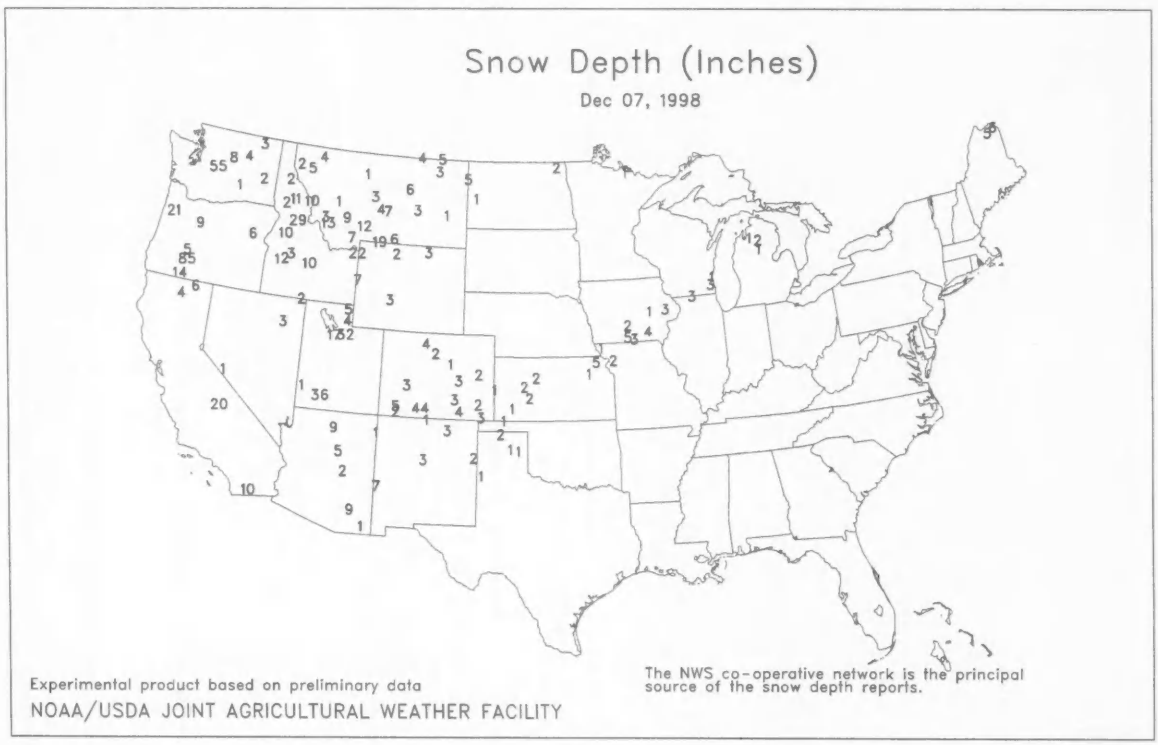
Based on 1961-90 normals.

National Agricultural Summary

November 30 - December 6, 1998

HIGHLIGHTS

Temperatures continued to average well above normal east of the Rocky Mountains, stimulating winter wheat development in parts of the central and southern Plains, southern and eastern Corn Belt, Southeast, and lower Mississippi Delta. In the southern High Plains, winter wheat also got a boost from scattered light showers. Wheat areas in the northern Rocky Mountains and Pacific Northwest also received beneficial precipitation. Dry conditions continued to assist late-season harvest efforts and fall tillage operations in most of the Corn Belt, Southeast, and middle Atlantic Coastal Plains. Warm, dry weather relieved muddy field conditions and allowed harvest activities to resume in parts of the northern Plains and upper Mississippi Valley. In parts of the southern and central Great Plains, from eastern Texas to eastern Kansas, fieldwork was halted by heavy rains. Fieldwork was also halted in most parts of the Pacific Northwest, as heavy rains continued to deluge coastal areas from northern California to the Canadian border.


Snow Depth (Inches)
Dec 07, 1998
Experimental product based on preliminary data
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY
The NWS co-operative network is the principal source of the snow depth reports.

International Weather and Crop Summary

November 29 - December 5, 1998

HIGHLIGHTS

FSU-WESTERN: The fourth consecutive week of unseasonably cold weather maintained a protective snow cover as far south as southern Ukraine.

EUROPE: Continued unseasonably cold weather caused winter grains to begin entering dormancy in the west and kept crops dormant in the north and east.

NORTHWESTERN AFRICA: The first substantial rains of the growing season in Morocco likely prompted widespread winter grain planting.

AUSTRALIA: Much-needed drier weather in the east aided summer crop development and winter grain maturation.

SOUTH ASIA: Seasonable dryness promoted summer crop harvesting and the planting of winter grown crops.

SOUTH AFRICA: Showers maintained generally favorable conditions for emerging corn and other summer crops.

SOUTHEAST ASIA: Drier weather eased wetness in southern Vietnam, while showers maintained adequate moisture supplies for rice and corn in Java.

EASTERN ASIA: Cold weather hardened winter grains for dormancy across the North China Plain.

SOUTH AMERICA: In central Argentina and Rio Grande do Sul, Brazil, topsoils became unfavorably dry for summer crop planting and germination.

CENTRAL AMERICA: Drier weather aided flood recovery efforts in Honduras.

November 1998

MONTHLY DATA FROM SELECTED FOREIGN CITIES
CLIMATE PREDICTION CENTER-NCEP-NWS-NOAA
**** DATA NOT AVAILABLE*

COUNTRY	CITY	TEMPERATURE (C)						PRECIPITATION (MM)	
		AVG MAX	AVG MIN	HI MAX	LO MIN	AVG	DPART F/NRM	TOTAL	DPART F/NRM
NORWAY	OSLO	-1	-4	4	-15	-3	-1.4	26	-64
SWEDEN	STOCKHOLM	1	-2	5	-10	0	-2.9	0	-53
FINLAND	HELSINKI	-2	-5	4	-17	-3	-3.6	33	-39
UKINGDO	GLASGOW	9	3	13	-5	6	-0.6	138	25
	EDINBURGH	9	3	15	-6	6	0.2	79	16
IRELAND	DUBLIN	10	5	14	-3	7	0	78	14
ICELAND	REYKJAVIK	4	1	10	-8	2	1.1	87	14
DENMARK	COPENHAGEN	3	0	8	-8	2	-3.5	27	-21
LUXEMBO	LUXEMBOURG	4	0	12	-10	2	-2	58	-21
SWITZERL	ZURICH	4	0	11	-10	2	-1.8	129	44
	GENEVA	7	1	15	-7	4	-1.3	89	-3
FRANCE	PARIS/ORLY	8	2	15	-8	5	***	37	***
	STRASBOURG	6	1	14	-10	3	-1.7	54	8
	BOURGES	8	2	18	-8	5	-1.7	53	-5
	BORDEAUX	13	4	22	-6	8	-0.4	120	28
	TOULOUSE	11	3	19	-7	7	-1.6	67	19
	MARSEILLE	12	4	20	-4	8	-2.4	22	-36
SPAIN	VALLADOLID	13	3	20	-4	8	0.4	13	-40
	MADRID	15	4	22	-5	10	0.5	21	-45
	SEVILLE	21	11	26	3	16	1	21	-50
PORTUGA	LISBON	19	12	21	7	15	1.2	33	-66
GERMANY	HAMBURG	4	0	11	-8	2	-3	56	-16
	BERLIN	4	0	11	-10	2	-3.2	43	-6
	DUSSELDORF	6	1	15	-9	4	-2.3	85	22
	LEIPZIG	4	0	11	-9	2	-2.2	49	12
	DRESDEN	3	0	11	-11	2	-2.8	64	22
	STUTTGART	4	-1	12	-10	2	-2.3	53	5
	NURNBERG	4	0	12	-11	2	-2	59	15
AUSTRIA	VIENNA	5	0	14	-8	3	-2	33	-9
	INNSBRUCK	5	-2	13	-10	2	-1.8	48	-12
CZECHRE	PRAGUE	3	-2	11	-14	1	-2.3	48	18
POLAND	WARSAW	0	-4	10	-17	-2	-5.1	39	-3
	LODZ	0	-3	9	-15	-1	-3.7	30	-9
	KATOWICE	2	-2	10	-10	0	-2.2	36	-5
	PRZEMYSL	1	-3	11	-11	-1	-4.3	38	-3
HUNGARY	BUDAPEST	6	1	15	-5	3	-1.5	79	27
YUGOSLA	BELGRADE	8	3	23	-3	5	-1.9	53	-3
ROMANIA	BUCHAREST	6	-1	21	-6	3	-3.2	45	-2
BULGARIA	SOFIA	7	1	24	-5	4	-1	53	3
ITALY	MILAN	12	3	21	-4	8	0.9	11	-85
	VERONA	11	3	18	-4	7	0.4	21	-52
	VENICE	11	3	18	-3	7	-0.2	18	-67
	GENOA	13	8	21	0	11	-1.8	9	-150
	ROME	15	8	21	1	11	-1.2	39	-68
	NAPLES	16	9	23	2	13	0.8	63	-91
GREECE	THESSALONIKA	14	8	24	-3	11	0.3	180	122
	LARISSA	14	7	25	0	11	0.2	124	64
	ATHENS	19	13	24	9	16	0.5	164	108
TURKEY	ISTANBUL	14	10	22	2	12	0.7	52	-36
	ANKARA	13	1	20	-7	7	0.8	38	13
CYPRUS	LARNACA	25	14	29	11	19	1.7	28	-10
ESTONIA	TALLINN	-2	-6	6	-14	-4	-4.6	29	-36
LITHUANI	KAUNAS	-2	-6	6	-21	-4	-6.1	33	-19
BELARUS	MINSK	-3	-7	7	-20	-5	-5.9	46	-5
RUSSIA	KAZAN	-7	-11	6	-26	-9	-5.9	49	5
	MOSCOW	-6	-10	6	-21	-8	-6.7	61	5
	YEKATERINBURG	-11	-15	4	-34	-13	-7.1	81	52
	OMSK	-11	-15	10	-37	-13	-5.8	37	9
	NOVOSIBIRSK	-9	-15	9	-36	-12	-2.2	42	14
	BARNAUL	-6	-13	14	-34	-9	-2.7	20	-15
	KHABAROVSK	-7	-14	3	-23	-10	-2.2	20	-1
	VLADIVOSTOK	-1	-6	13	-18	-4	-2.5	24	-6
	SARATOV	-4	-8	15	-24	-6	-4.2	73	33
	VOLGOGRAD	0	-5	18	-22	-3	-2.2	74	41
	ASTRAKHAN	5	-2	22	-15	2	-1.8	34	17
	KRASNODAR	9	3	22	-5	6	-0.4	117	57
	ORENBURG	-4	-10	15	-30	-7	-4	35	-4
KAZAKHS	TSELINOGRAD	-6	-14	14	-35	-10	-3.7	11	-11
	KARAGANDA	-4	-12	18	-34	-8	-3	15	-13
GEORGIA	TBILISI	14	6	22	-2	10	2	51	19

Based on Preliminary Reports

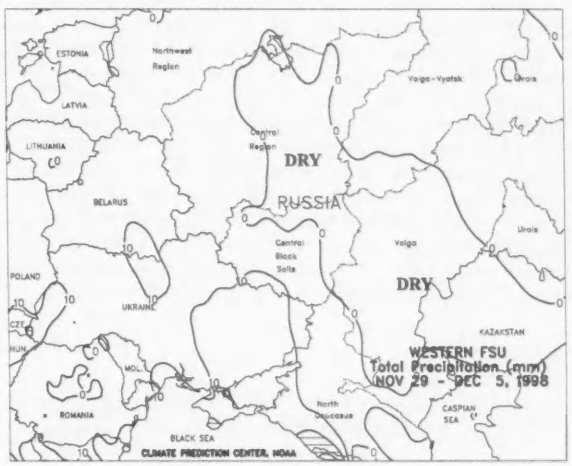
November 1998

COUNTRY	CITY	TEMPERATURE (C) AVG MAX	AVG MIN	HI MAX	LO MIN	AVG	DPART F/NRM	PRECIPITATION (MM) TOTAL	DPART F/NRM
SYRIA	DAMASCUS	24	7	31	1	15	3	0	-25
ISRAEL	JERUSALEM	22	12	27	7	17	2.5	6	-57
PAKISTAN	KARACHI	32	20	36	17	26	2.3	0	-2
INDIA	AMRITSAR	26	10	33	6	19	1.3	0	-7
	NEW DELHI	27	14	32	9	21	-0.1	15	8
	AHMEDABAD	32	16	35	10	24	-0.9	0	-11
	INDORE	30	16	34	9	23	1.2	1	-20
	CALCUTTA	30	21	33	15	25	1.8	170	154
	VERAVAL	33	21	36	17	27	0.8	0	-26
	BOMBAY	33	22	36	17	28	1	22	15
	POONA	30	16	32	8	23	0.4	40	17
	BEGAMPET	30	19	32	12	24	1.2	6	-17
	VISHAKHAPATNAM	30	24	32	21	27	***	116	**
	MADRAS	31	24	34	22	27	1.3	437	97
	MANGALORE	32	23	34	20	27	0.1	42	-30
HONGKO	KINGS PEAK	26	20	30	18	23	***	29	**
N KOREA	PYONGYANG	6	**	18	-13	**	***	23	-26
S KOREA	SEOUL	12	4	21	-7	8	1.4	30	-6
JAPAN	SAPPORO	6	1	18	-6	4	-0.8	140	41
	NAGOYA	17	8	23	3	12	0.8	11	-59
	TOKYO	17	11	24	5	14	1.4	2	-88
	YOKOHAMA	17	11	24	5	14	1.8	4	-100
	KYOTO	17	9	23	2	13	1.5	6	-89
	OSAKA	17	10	23	4	14	1	16	-50
THAILAND	PHETCHABUN	32	21	35	17	27	1.5	33	14
	BANGKOK	32	25	36	23	29	1.3	19	-34
MALAYSIA	KUALA LUMPUR	32	24	34	22	28	2.1	123	-153
VIETNAM	HANOI	27	20	32	17	24	1.9	2	-41
CHINA	HARBIN	-5	-12	6	-21	-9	-1.3	16	8
	HAMI	10	-3	26	-10	4	3.6	6	4
	LANCHOW	13	-1	19	-4	6	4.2	0	-5
	BEIJING	9	0	20	-8	4	0.1	11	5
	TIENTSIN	11	1	22	-7	6	0.3	4	-6
	LHASA	14	-2	18	-5	6	3	0	-2
	KUNMING	19	9	25	6	14	2.9	35	-5
	CHENGCHOW	17	5	27	-2	11	2.9	1	-24
	YEHCHANG	21	11	28	7	16	3.6	2	-44
	HANKOW	20	11	28	7	16	4.9	14	-41
	CHUNGKING	20	14	26	11	17	***	5	**
	CHIHKIANG	20	11	29	7	16	3	29	-40
	WU HU	20	9	28	5	15	***	15	**
	SHANGHAI	19	14	27	10	16	***	18	**
	NANCHANG	21	13	30	7	17	3.6	33	-21
	TAIPEI	24	21	31	18	23	2.5	88	24
	CANTON	26	18	30	14	22	2.8	22	-19
	NANNING	26	17	29	14	22	2.9	5	-40
CANARY I	LAS PALMAS	26	20	32	19	23	2.7	1	-21
MOROCC	CASABLANCA	21	13	27	8	17	0.8	0	-74
	MARRAKECH	26	11	32	6	19	2.2	0	-41
ALGERIA	ALGER	20	10	27	6	15	0.1	108	4
	BATNA	16	4	26	-2	10	0.3	32	-5
TUNISIA	TUNIS	19	11	29	4	15	-0.6	48	-8
NIGER	NIAMEY	37	21	40	19	29	1.3	0	0
MALI	TIMBUKTU	34	20	39	14	27	0.8	0	0
	BAMAKO	35	21	37	15	28	1	0	-3
MAURITAN	NOUAKCHOTT	34	22	40	17	28	2.1	0	-4
SENEGAL	DAKAR	32	25	38	22	28	2.8	0	0
CHAGOS	DIEGO GARCIA	28	27	32	23	**	***	204	-7
LIBYA	TRIPOLI	22	11	32	6	16	-1.1	26	-20
	BENGHAZI	21	15	27	10	18	0	33	-2
EGYPT	CAIRO	26	16	30	14	21	2.1	0	-4
	ASWAN	**	**	34	14	**	***	**	**
ETHIOPIA	ADDIS ABABA	**	**	24	2	**	***	**	**
KENYA	NAIROBI	25	14	29	10	20	0.3	67	-54
TANZANIA	DAR ES SALAAM	31	21	33	13	26	-0.3	106	-10
GABON	LIBREVILLE	29	24	31	22	26	0.5	458	-65
TOGO	LOME	33	25	34	21	29	1.7	30	8
BURKINA	OUAGADOUGOU	37	21	38	18	29	1.3	0	-2
COTE D'I	ABIDJAN	33	25	34	23	29	1.7	186	44
MOZAMBI	MAPUTO	29	21	37	18	25	1.5	249	177
ZAMBIA	LUSAKA	**	**	35	17	**	***	**	**
ZIMBABW	HARARE	28	17	34	14	22	1.6	124	23
S AFRICA	PRETORIA	27	17	35	11	22	1.2	233	132
	JOHANNESBURG	23	12	30	5	17	-0.5	210	93
	BETHAL	24	12	31	6	18	-0.1	148	21
	DURBAN	26	19	31	13	23	1.1	278	170
	CAPE TOWN	23	13	33	7	18	0	44	28
CANADA	TORONTO	9	1	19	-3	5	1.7	34	-37
	MONTREAL	7	1	14	-5	4	2	36	-57
	WINNIPEG	1	-7	10	-16	-3	1.5	8	-14
	REGINA	1	-8	13	-19	-4	1.5	40	28
	SASKATOON	0	-8	9	-20	-4	1.7	5	-9
	LETHBRIDGE	4	-5	12	-15	0	0.8	26	9
	CALGARY	2	-7	10	-14	-3	0.4	14	3
	EDMONTON	-1	-8	4	-16	-4	-0.1	16	-1
	VANCOUVER	10	6	15	2	8	1.9	251	81
MEXICO	GUADALAJARA	20	14	24	8	17	-0.6	0	-13
	MEXICO CITY	21	13	26	9	17	3.4	5	-9
	ACAPULCO	32	24	34	23	28	0.6	1	-43
BERMUDA	ST. GEORGES	25	19	27	15	22	0.4	45	-74
BAHAMAS	NASSAU	28	22	31	17	25	1.5	4	-51
JAMAICA	KINGSTON	32	25	33	23	28	1.5	119	38
P RICO	SAN JUAN	30	24	33	22	27	0.1	153	2
GUADELO	RAIZET	31	23	33	22	27	1.2	161	19
MARTINIQ	LAMENTIN	30	24	31	22	27	1.4	200	10
BARBADO	BRIDGETOWN	31	25	31	22	28	1	28	-104
TRINIDAD	PORT OF SPAIN	31	24	32	22	27	1.3	145	-53
COLOMBI	BOGOTA	19	10	22	5	14	0.9	91	4
VENEZUE	CARACAS	**	**	31	22	**	***	**	**
F GUIANA	CAYENNE	31	23	32	21	27	0.8	174	20
BRAZIL	FORTALEZA	**	**	**	27	**	***	**	**
	RECIFE	30	23	31	20	26	0.2	11	-33
	BELO HORIZONTE	26	19	31	16	22	-0.5	206	-36
	CAMPO GRANDE	**	**	**	24	**	***	**	**
	FRANCA	26	18	30	14	22	3.3	90	-112
	RIO DE JANEIRO	25	**	31	19	**	***	69	-30
	LONDRINA	**	20	33	15	**	***	23	-128
	SANTA MARIA	28	17	36	11	23	1.4	48	-84
	PORTO ALEGRE	26	15	34	10	21	-0.4	39	-36
PERU	LIMA	22	17	23	15	20	0.4	0	0
BOLIVIA	LA PAZ	16	3	30	-1	9	-0.8	43	-7
CHILE	SANTIAGO	26	8	32	5	17	0.4	0	-8
ARGENTIN	IGUAZU	30	18	36	13	24	***	27	**
	FORMOSA	30	19	37	14	24	0	179	-5
	CERES	30	15	37	7	22	-0.2	62	-37
	CORDOBA	27	15	34	8	20	-0.4	61	-39
	RIO CUARTO	25	14	34	7	19	-0.4	127	5
	ROSARIO	26	15	32	3	20	-0.1	187	90
	BUENOS AIRES	25	13	33	6	19	0.4	52	-46
	SANTA ROSA	27	12	36	6	20	0.4	54	-46
	TRES ARROYOS	26	12	35	3	19	2.4	28	-47
NEW CAL	NOUMEA	28	21	33	18	24	0.9	118	44
FIJI	NAUSORI	31	23	32	20	27	1.9	183	-74
SAMOA	PAGO PAGO	32	28	34	25	30	3.1	98	-178
TAHITI	PAPEETE	30	24	32	22	27	0.9	63	-97
AUSTRALI	DARWIN	33	26	34	23	29	-0.1	154	22
	BRISBANE	25	18	29	14	21	-1.5	115	5
	PERTH	26	14	36	7	20	0.6	15	-8
	CEDUNA	24	13	37	7	19	-0.6	30	11
	ADELAIDE	23	13	32	8	18	-0.3	23	1
	MELBOURNE	19	9	29	2	14	-1.7	52	3
	WAGGA	24	11	32	3	17	-0.9	62	22
	CANBERRA	20	9	25	0	14	-1.5	81	16
INDONESI	DJAKARTA	31	25	34	21	28	0.9	78	**
PHILIPPI	MANILA	31	27	33	25	29	1.8	59	-59

Based on Preliminary Reports

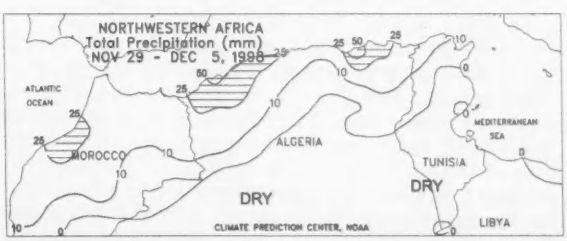
EUROPE

Unseasonably cold weather continued to prevail across most of Europe, causing winter grains to begin entering dormancy in the west and maintaining dormancy of winter grains in the north and east. Weekly temperatures averaged 2 to 7 degrees C below normal in most of Europe, except in Poland, where temperatures averaged 6 to 10 degrees C below normal. Like last week, lowest temperatures (-15 to -22 degrees C) were observed in eastern Poland, where a light to moderate snow cover protected winter grains from potential winterkill. Elsewhere, extreme minimum temperatures ranged from -2 to -4 degrees C in England, France, the Benelux countries, and northern Italy, and from -3 to -9 degrees C in Germany, the Czech Republic, Slovakia, Slovenia, Hungary, Romania, Serbia, and Bulgaria. Several days of dry weather helped late-season fieldwork in England, France, and Germany. In southern Europe, moderate to heavy rain (25 to locally more than 100 mm) spread eastward from eastern Spain through central Italy into Greece, slowing fieldwork.



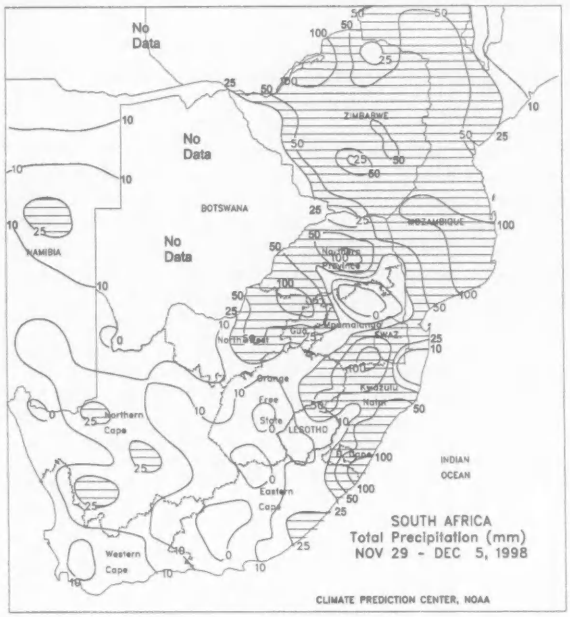
FSU-WESTERN

The fourth consecutive week of unusually cold weather occurred over the region, with weekly temperatures ranging from 5 to 13 degrees C below normal. Generally dry weather (precipitation amounts less than 5 mm) prevailed over most areas during the week. Snow cover as far south as southern Ukraine and the northern tip of the North Caucasus region in Russia provided protection from bitterly cold weather (extreme minimum temperatures ranging from -15 to -32 degrees C). Although winter wheat areas in extreme southern Ukraine and the southern half of the North Caucasus remained snow-free during the week, temperatures did not fall low enough to threaten dormant crops. At week's end, warmer weather spread eastward over Ukraine and southern Russia, with daytime highs rising above freezing (1 to 11 degrees C). The milder weather in these areas was accompanied by a mixture of rain and snow, with precipitation amounts ranging from 5 to 23 mm.



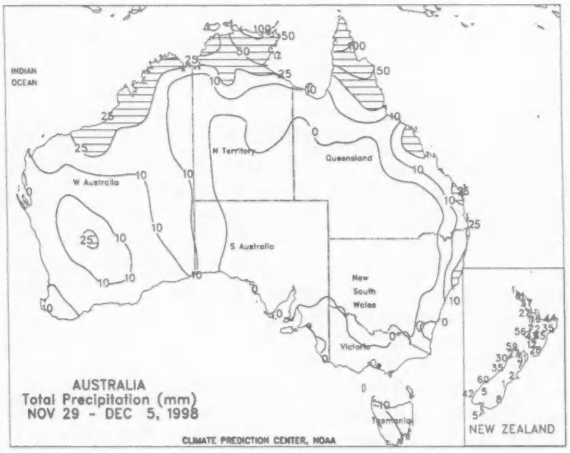
NORTHWESTERN AFRICA

In Morocco, the first significant precipitation since the beginning of the growing season fell over winter grain areas. Rainfall amounts ranging from 10 to 34 mm will likely prompt widespread planting, delayed by previous dryness. However, additional rain is needed to ensure uniform crop emergence and sufficient establishment. Farther east, light to moderate showers (10-33 mm) in Algeria maintained adequate topsoil moisture for emerging winter grains. In Tunisia, light, if any, precipitation (less than 8 mm) allowed winter grain planting to progress without delays. Weekly temperatures averaged 1 to 3 degrees C below normal in Morocco, Algeria, and Tunisia.



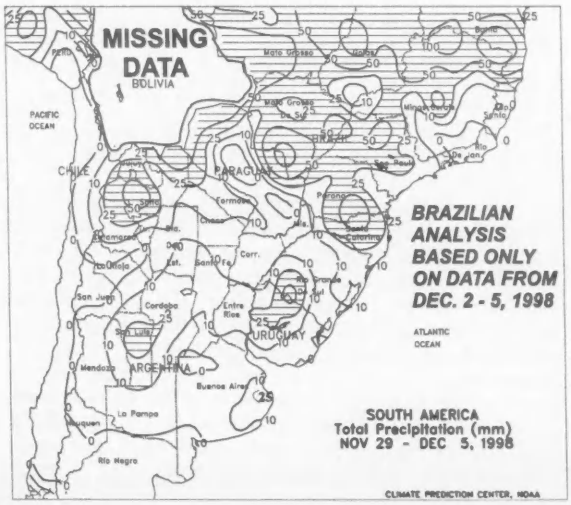
SOUTH AFRICA

Widespread, locally heavy rain (10-50 mm or more) maintained generally favorable growing conditions for corn and other summer crops. The continuation of beneficial rain in eastern and northern corn areas has sustained high pre-season yield prospects. A drying trend was developing in western crop areas of Free State but locally heavy rainfall (25-50 mm or more) returned to important white corn areas of North West. Temperatures across the corn belt were seasonable, with highs reaching the lower 30s C in western crop areas and the upper 20's C in the east. Elsewhere, heavy rain (50 mm or greater) continued in sugarcane areas of KwaZulu-Natal as more moderate amounts covered crops in Eastern Cape. In Western Cape, scattered, mostly light showers (3-8 mm, locally exceeding 20 mm) disrupted late wheat harvests.



AUSTRALIA

Dry weather dominated much of the east. In Queensland and northern New South Wales, the break in the chronic wetness favored cotton and sorghum development. In the southeast (South Australia to southern New South Wales), conditions favored maturing winter wheat and barley. Along the coast, however, showers (10-25 mm or more) kept coastal sugarcane areas unfavorably wet. Temperatures across the east averaged 1-3 degrees C below normal, although occasional highs in the lower to middle 30s C aided winter grain dry down and spurred summer crop growth. Scattered, light to moderate showers (most areas 10 mm or less, but locally exceeding 25 mm) caused some harvest delays in winter grain areas of Western Australia. In New Zealand, moderate to heavy rain (25-50 mm or more) covered most agricultural areas, the exception being pasture areas in eastern South Island.

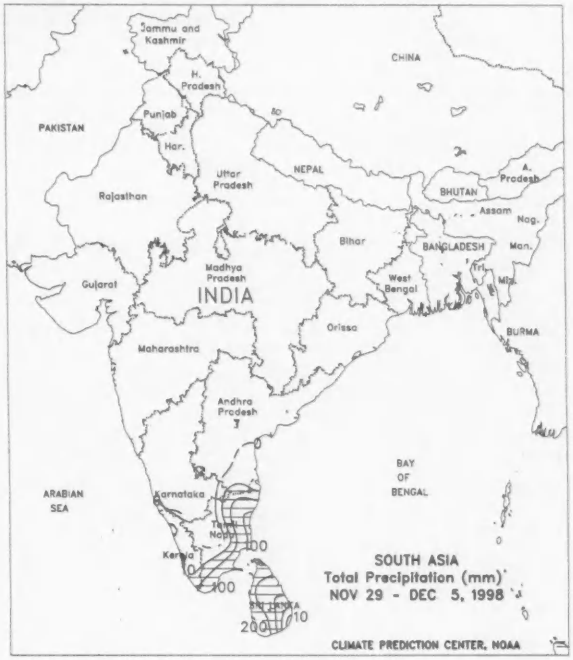


SOUTH AMERICA

In central Argentina, dry weather caused topsoils to become unfavorably dry for soybean and corn planting and germination, especially in northern Buenos Aires. Subsoil moisture supplies should be adequate in southern Cordoba and southern Santa Fe, but limited in northern Buenos Aires. Farther south in southern Buenos Aires, light rain (5-15 mm) provided little relief to stressed filling to maturing winter wheat. According to reports as of November 27, corn was 77 percent planted versus 80 percent last year, sunseed was 90 percent planted versus 85 percent last year, and soybeans were 52 percent planted versus 51 percent last year. Wheat harvesting was 15 percent complete. In southern Brazil, mostly dry weather prevailed across Rio Grande do Sul, causing topsoils to become unfavorably dry for soybean planting. Surface observations were missing from November 29 to December 1, but satellite data suggested that little or no rain fell across Rio Grande do Sul during this period, while scattered showers prevailed to the north. Moderate showers (25-70 mm) covered the remaining major soybean areas, boosting moisture supplies in Parana and maintaining adequate supplies elsewhere.

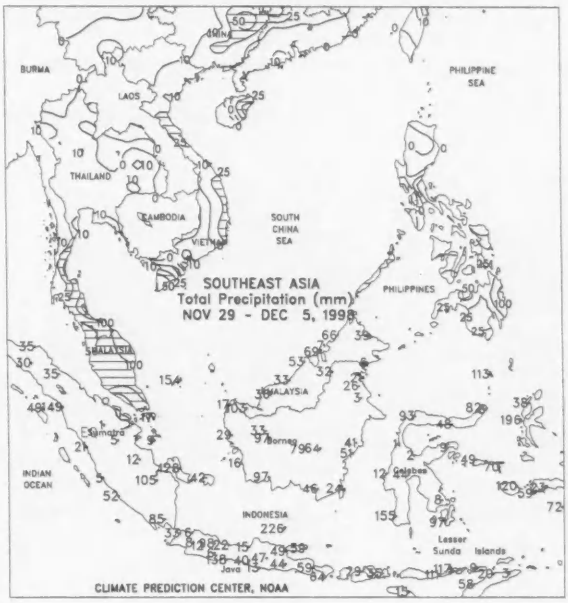
SOUTH ASIA

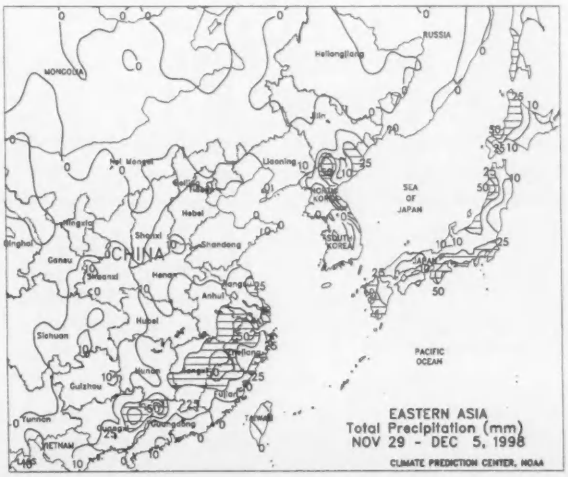
Warm, dry weather favored maturing summer crops and facilitated seasonal fieldwork. The dryness extended to Bangladesh and neighboring sections of India, bringing some relief to rice areas that had been very wet until recently. In central and northern crop areas, winter wheat and oilseed planting continued to make good progress. In southern India, the drier weather favored early growth of rabi (autumn-planted) grains and oilseeds, but showers disrupted fieldwork in coastal rice areas of the southern tip. Near- to above-normal temperatures throughout much of the region aided summer crop dry down, and germination and early development of newly sown grains and oilseeds.



SOUTHEAST ASIA

Rainfall (5-40 mm) diminished across southern and south-central Vietnam, providing relief from a series of three Tropical Storms (Chip, Dawn, and Elvis) that battered the region during the past several weeks. The drier weather favored seasonal rice harvesting and transplanting. In Thailand, seasonably dry weather favored main-season rice harvesting. Showers (20-70 mm) maintained moisture supplies for rice and corn in Java. Showers (30-90 mm) increased moisture supplies for rice and oil palm across peninsular Malaysia, eastern Malaysia (Sabah and Sarawak), and the Indonesian portion of Borneo. In the Philippines, widespread showers (30-90 mm, with scattered amounts greater than 100 mm) slowed main-season grain harvesting, but maintained moisture reserves for second-season crops.





EASTERN ASIA

Cold weather covered the North China Plain and penetrated as far south as the Yangtze Valley, hardening winter wheat and nudging the crop into the early stages of dormancy. Minimum temperatures ranged from -2 to -8 degrees C (2-4 degrees C below normal) across the North China Plain, burning back vegetative winter wheat. Light precipitation (less than 5 mm water equivalent), falling mostly as snow, fell across Hebei and Shandong. Heavier amounts (10-50 mm), falling mostly as rain, boosted moisture supplies for germinating to vegetative winter grains and oilseeds across the southern North China Plain, Yangzte Valley, and southeastern China.

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Monthly Record Highs (°F), December 1-7, 1998

Location/Date	High	Former Record/Date
December 1		
Pierre, SD	77	76 on Dec. 3, 1941
Alliance, NE	72	72 on Dec. 6, 1939
Yankton, SD	69	67 in 1890, 1939, and Dec. 9, 1970
Minneapolis, MN	68	63 in 1939, 1982
Spencer, IA	67	not available
Mason City, IA	67	not available
Sioux Falls, SD	63	62 on Dec. 3, 1941
Eau Claire, WI	63	63 in 1982
December 2		
Yankton, SD	70	see previous listing
Sioux Falls, SD	63	see previous listing
December 3		
Milwaukee, WI	64	63 in 1877, 1946, 1970, and 1982
Sioux Falls, SD	63	see previous listing
Green Bay, WI	62	62 in 1970
Marquette, MI	59	59 on Dec. 3, 1982
December 4		
Washington (DCA), DC	76	75 on Dec. 28, 1946, Dec. 4, 1982, and Dec. 29, 1984
Newark, NJ	75	72 on Dec. 10, 1946, Dec. 4, 1982, and Dec. 6, 1982
Wilmington, DE	75	74 on Dec. 29, 1984
Atlantic City Marina, NJ	74	72 on Dec. 18 and Dec. 29, 1984
N.Y. Central Park, NY	74	72 on Dec. 4, 1982
Burlington, IA	73	71 on Dec. 3, 1970
Philadelphia, PA	73	72 on Dec. 7, 1951 and Dec. 29, 1984
Bridgeport, CT	72	65 on Dec. 11, 1971
Brookhaven Lab, NY	72	69 on Dec. 29, 1984
Allentown, PA	72	72 on Dec. 29, 1984
Lincoln, IL	72	72 on Dec. 3, 1970 and Dec. 28, 1984
Moline, IL	71	69 on Dec. 3, 1970
Providence, RI	71	70 on Dec. 29, 1984
Champaign, IL	71	70 on Dec. 15, 1948
Cedar Rapids, IA	69	67 on Dec. 5, 1975
Scranton, PA	69	69 on Dec. 2, 1914
Dubuque, IA	67	67 on Dec. 24, 1889
Rockford, IL	66	66 on Dec. 28, 1984
December 5		
Salisbury, MD	76	76 on Dec. 16, 1971
Joplin, MO	76	76 on Dec. 13, 1948, Dec. 7, 1996
LaCrosse, WI	67	64 on Dec. 2, 1982
Madison, WI	62	62 in 1877, 1970, 1982, and 1984
December 6		
Wilmington, NC	81	81 on Dec. 1, 1982, Dec. 19, 1984, and Dec. 30, 1984
Richmond, VA	81	80 on Dec. 16, 1971
Mobile, AL	81	81 on Dec. 12, 1971 and Dec. 28, 1974
Roanoke, VA	80	76 in 1984
Raleigh-Durham, NC	80	79 on Dec. 4, 1978
Dulles Airport, VA	79	78 on Dec. 29, 1984
Washington (DCA), VA	78	see previous listing
Lynchburg, VA	78	78 in 1984
Baltimore (BWI), MD	77	77 on Dec. 29, 1984
Salisbury, MD	77	see previous listing
Dayton, OH	72	72 on Dec. 2, 1982
Detroit, MI	69	68 in 1982
December 7		
Wilmington, NC	82	see previous listing
Richmond, VA	81	see previous listing
Mobile, AL	81	see previous listing
Raleigh-Durham, NC	80	see previous listing
Lynchburg, VA	79	see previous listing
Washington (DCA), VA	79	see previous listing
Greensboro, NC	78	78 on Dec. 16, 1971
Baltimore (BWI), MD	77	see previous listing
Salisbury, MD	77	see previous listing
Atlantic City, NJ	77	75 on Dec. 29, 1984
Providence, RI	77	see previous listing
Bridgeport, CT	76	see previous listing
Boston, MA	76	73 on Dec. 29, 1984
Hartford, CT	76	74 on Dec. 29, 1984
Newark, NJ	76	see previous listing
Harrisburg, PA	75	75 on Dec. 29, 1984
Atlantic City Marina, NJ	74	see previous listing
Milton (Blue Hill), MA	74	72 on Dec. 29, 1984
Concord, NH	73	68 on Dec. 4, 1982
Philadelphia, PA	73	see previous listing
Worcester, MA	72	70 on Dec. 29, 1984
Portland, ME	71	69 on Dec. 4, 1982
Williamsport, PA	69	68 on Dec. 1, 1927
Burlington, VT	67	67 on Dec. 5, 1941
Montpelier, VT	67	64 on Dec. 4, 1982
Massena, NY	65	65 on Dec. 3, 1982

Compiled from National Weather Service record reports.
Data are preliminary and subject to change.

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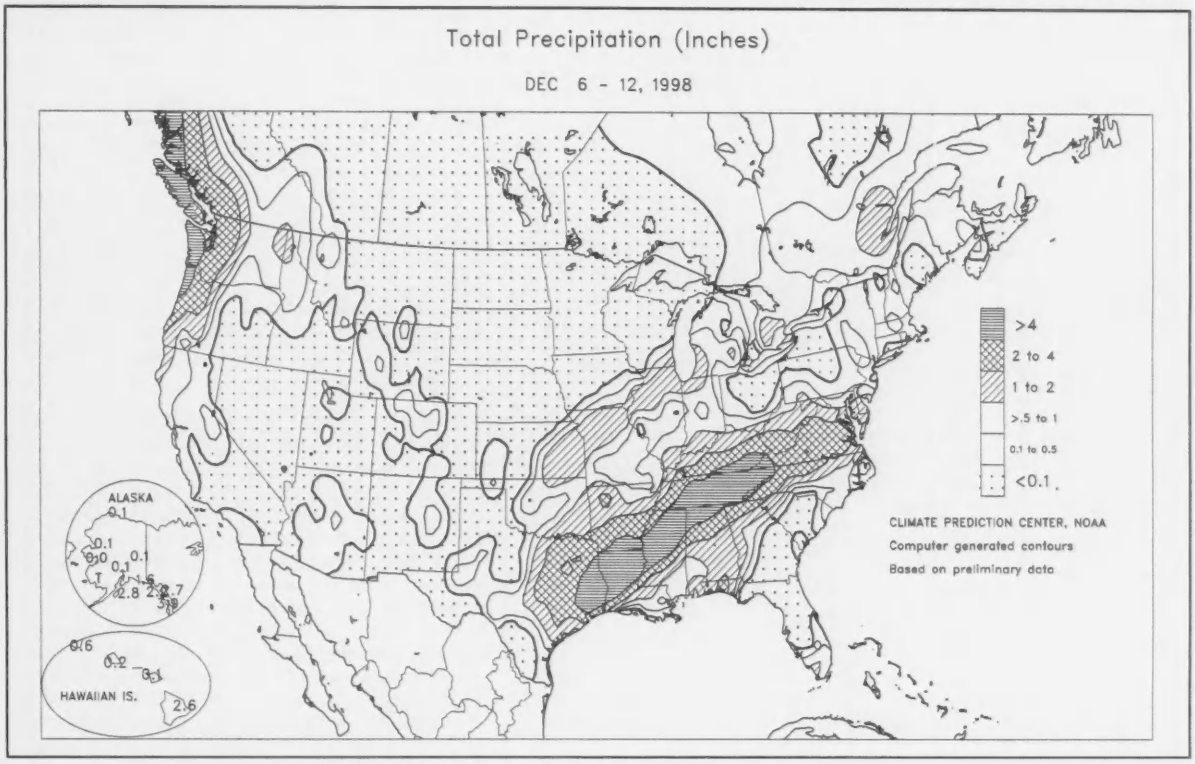

HIGHLIGHTS

December 6 - 12, 1998

Cooler air overspread the Nation in the wake of early December's record warmth, helping to cold-harden winter wheat. Unusually mild weather quickly returned, however, to the **North Central States**, resulting in weekly temperature departures of +5 to +15°F. In contrast, temperatures generally ranged from 3 to 7°F below normal from **California** to the **southern High Plains**. Rare snowfall was reported early in the week across the **Desert Southwest**, and record snow blanketed the **southernmost Plains** on Friday. The cool, unsettled weather across the **Southwest** continued to slow late cotton harvesting. Farther east, two rain events unfolded from the **southern Ohio Valley** and the

(Continued on page 2)

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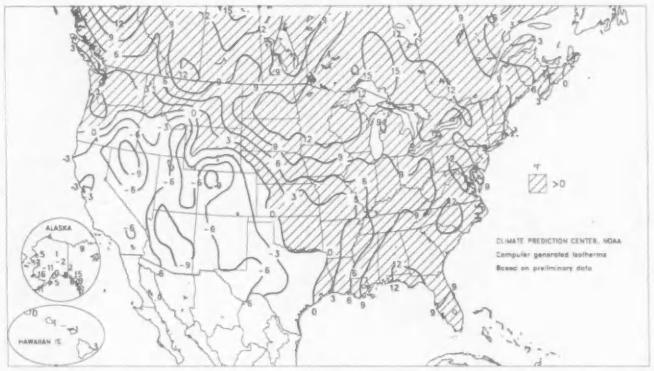
(Continued from front cover)
Delta to the **Mid-Atlantic region**, easing long-term drought and improving soil moisture for fall-sown crops. Significant rain, locally heavy, also fell in areas from **eastern Kansas** to **eastern Texas**. Showery weather continued in the **Northwest**, further improving soil moisture in major winter wheat areas but maintaining wet conditions **west of the Cascades**.

In the **East**, approximately 180 additional daily-record highs and 30 monthly records were set or tied from December 6-8. Totals since November 22 climbed to more than 700 daily records and at least 78 monthly records. On Sunday, **Chattanooga, TN** notched their sixth consecutive daily-record high (71, 74, 75, 76, 77, and 77°F). A day later, **Bridgeport, CT** registered 76°F. Prior to this year, **Bridgeport's** December-record high had been 65°F on December 11, 1971. Monthly records were also shattered on December 7 by at least 5°F in **Providence, RI** (77°F) and **Concord, NH** (73°F). Highs on Monday topped 70°F as far north as **Portland, ME** (71°F). On Tuesday, a final flurry of records resulted in December record-tying highs in **Wilmington, NC** (82°F) and **Myrtle Beach, SC** (81°F).

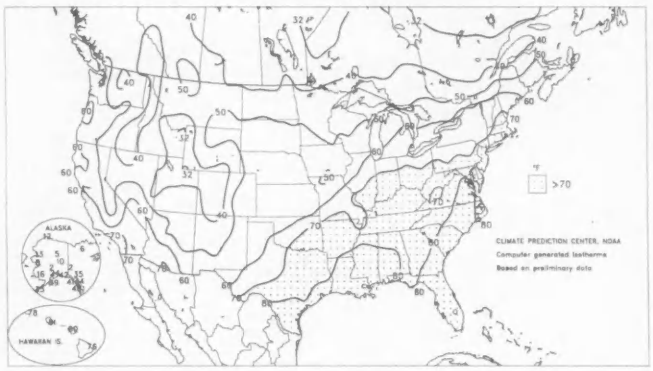
Departure of Average Temperature from Normal (°F)

DEC 6 - 12, 1998



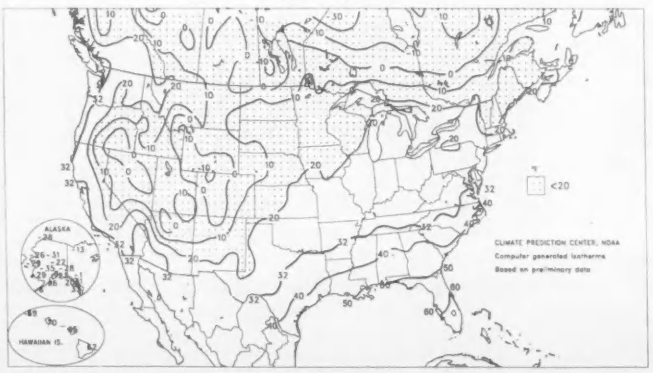
Extreme Maximum Temperature (°F)

DEC 6 - 12, 1998



Extreme Minimum Temperature (°F)

DEC 6 - 12, 1998



During the early-week period, nearly a dozen daily-record lows were observed in **California**. On December 6-7, **Redding** noted consecutive records (25 and 27°F). On the latter date, **Bakersfield** registered 28°F, a daily record. Across the **Southwest**, temperatures dipped as low as 34°F (on Monday) in **Phoenix, AZ** and 32°F (on Wednesday) in **Imperial, CA**. The season's first hard freeze arrived on the **southernmost Plains** on Tuesday, helping to defoliate unharvested cotton. On Wednesday, brief "Santa Ana" conditions across southern California produced wind gusts to 69 mph in Ontario. Farther north and east, temperatures remained above normal despite the cool-down. Through December 12 in **Wisconsin, Madison's** month-to-date temperatures averaged 17°F above normal, and **LaCrosse's** streak of above-normal temperatures reached 21 days. **Oklahoma City, OK** received their first autumn freeze on December 8, breaking a record that had stood since November 30, 1934. Through week's end, autumn freezes had not yet occurred in locations such as **New York's Central Park** (breaking a December 11, 1948, record), **Little Rock, AR** (formerly December 11, 1994), and **Atlanta, GA** (also December 11, 1994).

On Sunday, 1.0 inch of snow whitened **Las Vegas, NV**, while a trace fell in **Phoenix**. The only other time at least an inch accumulated in **Las Vegas** during December was on the 15th in 1967, when 2 inches fell. Snow was last observed in **Phoenix** on February 4, 1994. Later in the week, 9.8 inches buried **Midland, TX** on Friday, breaking their snowfall records for any 24-hour period (6.8 inches on January 23-24, 1974), single storm (7.0 inches), and month (9.0 inches in January 1985). In contrast, season-to-date snowfall (through December 12) in **New York** was the lowest on record in **Rochester** (0.1 inch) and **Buffalo** (0.2 inch). The season's first accumulation (0.2 inch) occurred in **Syracuse, NY** on December 11, breaking their record for latest measurable snowfall, set on December 1, 1966. Records for the latest first trace of snow have already been established at locations such as **Indianapolis, IN** (December 7, 1994), **Detroit, MI** (November 30, 1918 and 1963), **Cincinnati, OH** (December 9, 1994), and **Dayton, OH** (December 10, 1994). On **Lake Erie** at **Buffalo**, the water temperature stood at 49°F on December 9, 8°F above normal and the highest on record for the date. Just last winter, the lake failed to freeze over for only the third time on record.

Rain twice spread eastward across the **Southeastern States**, totaling 2 to 6 inches (with locally higher amounts in the **lower Mississippi Valley**), significantly improving soil moisture from the **Delta** to the **southern Middle Atlantic States**. December 1-13 rainfall rose to 5.53 inches (271 percent of normal) in **Nashville, TN**, 4.64 inches (377 percent) in **College Station, TX**, 4.00 inches (221 percent) in **Shreveport, LA**, and 3.45 inches (256 percent) in **Richmond, VA**. In **Nashville**, the December total surpassed their rainfall (4.28 inches) during the entire meteorological autumn (September-November).

National Weather Data for Selected Cities

Weather Data for the Week Ending December 12, 1998

Data Provided by Climate Prediction Center (301-763-8000 EXT. 7503) and the Southern Regional Climate Center

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP. °F		PRECIP.	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL IN. SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL	BIRMINGHAM	66	52	78	39	59	12	1.98	0.84	0.76	1.98	102	62.46	121	92	60	0	0	5	2
	HUNTSVILLE	61	47	77	36	54	10	3.19	1.86	1.57	3.19	141	41.83	78	98	70	0	0	6	2
	MOBILE	74	56	81	46	65	11	0.90	-0.30	0.76	1.19	59	85.48	141	97	67	0	0	4	1
	MONTGOMERY	71	53	82	44	62	11	0.42	-0.75	0.17	0.47	24	46.87	93	96	57	0	0	4	0
AK	ANCHORAGE	20	13	24	8	17	0	0.01	-0.24	0.00	0.79	184	11.13	73	93	70	0	7	1	0
	BARROW	3	-16	12	-28	-7	4	0.14	0.11	0.05	0.19	380	4.68	110	79	64	0	7	5	0
	FAIRBANKS	-1	-14	10	-22	-7	-2	0.08	-0.11	0.03	0.30	91	10.42	100	86	73	0	7	4	0
	JUNEAU	40	34	44	31	37	9	2.73	1.74	1.13	3.48	205	62.32	120	97	75	0	1	7	2
	KODIAK	30	22	39	16	26	-5	2.84	1.36	2.66	3.08	123	104.79	166	81	57	0	7	3	1
	NOME	-3	-14	8	-29	-9	-17	0.00	-0.19	0.00	0.23	70	23.54	163	80	67	0	7	0	0
AZ	FLAGSTAFF	32	7	50	-9	20	-11	0.07	-0.48	0.05	0.52	56	27.48	129	87	43	0	7	2	0
	PHOENIX	59	38	68	34	49	-7	0.24	0.02	0.24	0.44	116	10.28	145	76	27	0	0	1	0
	TUCSON	55	31	65	28	43	-9	0.20	-0.04	0.20	0.49	126	13.65	120	85	31	0	5	1	0
	YUMA	61	43	66	38	52	-5	0.06	-0.04	0.03	0.11	69	4.57	159	50	23	0	0	1	0
AR	FORT SMITH	53	39	75	27	46	4	1.72	0.97	1.28	2.40	180	44.07	112	90	54	0	1	4	1
	LITTLE ROCK	54	43	77	31	48	4	2.16	1.00	0.82	2.16	108	39.78	83	94	57	0	1	5	2
CA	BAKERSFIELD	53	32	57	28	43	-6	0.12	-0.02	0.12	0.56	233	13.23	249	93	49	0	3	1	0
	EUREKA	54	39	62	32	47	-2	0.56	-0.83	0.24	3.88	161	62.17	183	92	64	0	1	5	0
	FRESNO	52	34	55	31	43	-3	0.13	-0.17	0.12	0.55	106	17.19	178	99	57	0	3	2	0
	LOS ANGELES	64	43	77	37	54	-4	0.39	0.03	0.39	0.81	133	25.86	236	85	19	0	0	1	0
	REDDING	51	33	63	25	42	-4	0.30	-0.92	0.14	1.53	74	60.60	203	92	49	0	3	3	0
	SACRAMENTO	51	34	56	27	43	-4	0.05	-0.47	0.04	0.50	55	28.65	180	98	65	0	2	2	0
	SAN DIEGO	63	44	69	41	53	-5	0.09	-0.27	0.09	0.66	108	15.75	176	71	23	0	0	1	0
	SAN FRANCISCO	53	41	55	38	47	-3	0.00	-0.65	0.00	0.69	63	32.39	184	91	61	0	0	0	0
CO	ALAMOSA	33	2	42	-3	17	-2	0.00	-0.11	0.00	0.00	0	6.84	94	86	27	0	7	0	0
	CO SPRINGS	35	14	50	8	25	-6	0.13	0.02	0.06	0.15	79	16.22	101	84	31	0	7	2	0
	DENVER	39	16	49	13	27	-5	0.05	-0.11	0.05	0.05	18	15.96	106	83	36	0	7	1	0
	GRAND JUNCTION	35	15	45	11	25	-6	0.00	-0.14	0.00	0.02	8	8.86	107	86	41	0	7	0	0
	PUEBLO	43	14	58	4	28	-4	0.09	-0.03	0.05	0.08	42	11.51	105	92	31	0	7	2	0
CT	BRIDGEPORT	52	36	73	27	44	7	0.19	-0.62	0.18	0.25	18	41.19	104	92	50	0	3	2	0
	HARTFORD	52	34	74	23	43	11	0.17	-0.74	0.17	0.23	15	44.75	107	89	45	0	4	1	0
DC	WASHINGTON	59	44	78	35	51	10	1.01	0.29	0.74	1.01	82	35.19	96	87	52	0	0	4	1
DE	WILMINGTON	55	38	72	28	47	9	0.42	-0.38	0.34	0.42	31	35.94	93	95	54	0	4	4	0
FL	DAYTONA BEACH	80	63	82	59	71	10	0.01	-0.57	0.01	0.37	37	39.54	85	95	58	0	0	1	0
	JACKSONVILLE	74	57	80	51	66	9	0.04	-0.54	0.04	0.06	6	56.49	114	97	64	0	0	1	0
	KEY WEST	80	74	81	73	77	5	0.36	-0.11	0.20	0.36	46	36.73	96	90	71	0	0	2	0
	MIAMI	81	72	82	69	76	6	0.34	-0.07	0.16	0.67	92	68.97	126	84	60	0	0	4	0
	ORLANDO	81	62	83	57	71	8	0.00	-0.50	0.00	0.01	1	44.11	94	99	55	0	0	0	0
	PENSACOLA	73	59	80	51	66	12	1.35	0.41	1.01	1.41	89	65.42	110	94	65	0	0	4	1
	TALLAHASSEE	75	58	80	51	67	12	0.04	-1.08	0.02	0.07	4	57.29	92	94	55	0	0	3	0
	TAMPA	82	66	83	62	73	10	0.00	-0.49	0.00	0.00	0	54.24	127	99	59	0	0	0	0
	WEST PALM BEACH	80	70	81	63	75	7	0.50	-0.10	0.24	1.37	126	64.96	109	84	60	0	0	4	0
GA	ATHENS	63	49	77	40	56	10	0.56	-0.34	0.28	0.55	36	49.04	104	95	55	0	0	3	0
	ATLANTA	63	50	73	42	56	10	0.58	-0.38	0.33	0.58	36	44.81	93	93	55	0	0	4	0
	AUGUSTA	71	48	81	37	59	11	0.07	-0.65	0.03	0.07	6	46.35	109	88	37	0	0	3	0
	COLUMBUS	67	55	76	47	61	11	1.13	0.02	0.85	1.13	61	32.74	68	93	59	0	0	3	1
	MACON	68	51	77	43	60	10	0.61	-0.32	0.49	0.61	40	42.43	101	93	53	0	0	4	0
	SAVANNAH	72	52	81	41	62	9	0.25	-0.37	0.25	0.25	24	47.41	100	98	50	0	0	1	0
HI	HILO	75	64	78	62	69	-3	2.59	-0.30	0.76	6.93	137	105.23	86	100	80	0	0	7	2
	HONOLULU	80	71	81	70	76	1	0.19	-0.65	0.06	0.37	26	4.00	20	83	60	0	0	5	0
	KAHULUI	79	67	80	65	73	-1	0.11	-0.58	0.09	0.28	24	5.86	31	87	61	0	0	3	0
	LIHUE	76	70	78	69	73	0	0.60	-0.53	0.27	1.15	59	25.33	63	90	73	0	0	6	0
ID	BOISE	37	24	45	17	30	-1	0.09	-0.21	0.05	0.50	94	15.56	138	90	55	0	7	2	0
	LEWISTON	41	32	46	24	36	1	0.24	-0.04	0.09	0.30	64	17.07	145	88	53	0	4	4	0
	POCATELLO	27	14	32	5	20	-6	0.08	-0.17	0.01	0.41	95	13.17	115	91	66	0	7	3	0
IL	CHICAGO/O'HARE	48	31	62	27	39	10	1.10	0.50	1.10	1.10	104	37.44	109	92	53	0	5	1	1
	MOLINE	47	26	55	22	36	8	0.83	0.30	0.83	0.83	90	47.90	127	93	58	0	6	1	1
	PEORIA	46	28	55	22	37	7	1.31	0.72	1.31	1.35	132	42.06	121	95	56	0	6	1	1
	ROCKFORD	45	25	57	21	35	9	0.84	0.34	0.83	0.84	95	39.87	114	96	60	0	6	2	1
	SPRINGFIELD	47	27	65	20	37	5	0.24	-0.42	0.24	0.24	21	44.51	132	93	56	0	5	1	0
IN	EVANSVILLE	52	36	73	25	44	7	0.39	-0.48	0.33	0.55	37	40.74	99	96	60	0	4	3	0
	FORT WAYNE	49	31	69	22	40	9	0.35	-0.34	0.34	0.37	31	37.69	114	94	53	0	5	2	0
	INDIANAPOLIS	51	32	72	23	42	8	0.31	-0.49	0.31	0.31	23	48.66	126	91	52	0	5	1	0
	SOUTH BEND	47	30	64	24	39	8	1.41	0.63	1.40	1.43	106	34.64	93	96	57	0	5	2	1
IA	BURLINGTON	48	30	56	23	39	10	1.37	0.89	1.37	1.38	166	52.19	149	86	54	0	6	1	1
	CEDAR RAPIDS	42	21	48	15	32	7	0.02	-0.37	0.02	0.02	3	45.26	138	95	64	0	7	1	0
	DES MOINES	45	25	50	19	35	8	0.04	-0.26	0.04	0.07	12	39.61	123	90	48	0	7	1	0
	DUBUQUE	42	24	54	18	33	9	0.10	-0.38	0.04	0.12	14	43.30	116	93	64	0	7	3	0
	SIOUX CITY	47	18	53	14	32	9	0.00	-0.19	0.00	0.03	9	30.96	122	86	37	0	7	0	0
	WATERLOO	46	23	51	18	34	11	0.00	-0.32	0.00	0.01	2	44.55	136	84	42	0	7	0	0
KS	CONCORDIA	47	26	53	24	36	5	0.09	-0.11	0.09	0.10	29	33.17	117	88	42	0	7	1	0
	DODGE CITY	46	24	56	22	35	1	0.18	0.01	0.18	0.18	64	21.66	103	89	46	0	7	1	0
	GOODLAND	44	17	58	12	30	0	0.00	-0.10	0.00	0.00	0	18.20	102	85	24	0	7	0	0
	TOPEKA	48	26	52	23	37	5	1.18	0.83	1.18	1.19	196	42.14	123	92	46	0	6	1	1

Based on 1961-90 normals

Weather Data for the Week Ending December 12, 1998

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP. °F		PRECIP.	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	WICHITA	47	28	52	25	37	3	0.64	0.34	0.64	0.80	157	34.41	120	92	52	0	6	1	1
KY	JACKSON	54	41	73	32	48	8	2.11	1.09	1.12	2.55	146	50.78	108	93	57	0	1	3	2
	LEXINGTON	53	38	71	26	46	8	0.98	0.04	0.50	1.46	92	47.87	114	98	59	0	3	3	1
	LOUISVILLE	55	41	72	31	48	9	0.58	-0.27	0.28	0.72	49	45.56	108	94	53	0	3	3	0
	PADUCAH	54	38	72	25	46	7	0.84	-0.26	0.59	1.60	85	53.86	116	93	59	0	4	5	1
LA	BATON ROUGE	69	54	83	43	61	7	0.67	-0.58	0.36	0.76	36	53.66	93	97	70	0	0	4	0
	LAKE CHARLES	64	53	81	46	59	4	2.09	0.96	0.99	2.10	109	55.07	107	98	76	0	0	6	2
	NEW ORLEANS	73	58	82	48	66	10	0.77	-0.53	0.47	0.94	43	77.72	133	93	71	0	0	3	0
	SHREVEPORT	56	45	81	38	51	1	3.97	3.03	1.47	4.10	252	48.47	111	96	62	0	0	7	3
ME	CARIBOU	33	16	45	4	25	7	0.59	-0.17	0.40	0.72	55	34.97	101	93	59	0	7	3	0
	PORTLAND	46	27	70	17	36	8	0.22	-0.87	0.19	0.26	14	53.72	129	95	50	0	5	4	0
MD	BALTIMORE	58	39	77	27	49	10	0.50	-0.27	0.43	0.55	42	33.67	87	90	47	0	4	4	0
MA	BOSTON	51	37	75	30	44	8	0.40	-0.53	0.40	0.43	27	52.26	134	90	58	0	1	1	0
	WORCESTER	48	33	70	22	40	11	0.48	-0.46	0.48	0.52	32	45.64	101	89	49	0	4	1	0
MI	ALPENA	43	28	57	25	36	10	0.74	0.27	0.71	0.80	98	32.46	118	91	58	0	6	3	1
	GRAND RAPIDS	46	31	60	26	38	9	0.87	0.18	0.83	0.92	77	31.97	93	91	57	0	6	2	1
	HOUGHTON LAKE	42	28	55	24	35	10	0.72	0.26	0.68	0.80	99	24.15	89	93	65	0	6	2	1
	LANSING	47	29	65	23	38	9	0.94	0.37	0.94	0.97	99	28.34	97	93	54	0	6	1	1
	MARQUETTE	40	23	48	15	32	12	0.01	-0.60	0.01	0.05	5	37.85	112	84	46	0	7	1	0
	MUSKEGON	46	33	56	27	39	9	0.92	0.21	0.83	1.13	93	28.11	91	86	60	0	2	2	1
MN	DULUTH	38	22	48	18	30	14	0.00	-0.29	0.00	0.57	112	32.68	112	90	52	0	7	0	0
	INT'L FALLS	31	11	40	3	21	11	0.05	-0.14	0.00	0.10	30	22.28	93	94	68	0	7	2	0
	MINNEAPOLIS	41	21	47	18	31	11	0.00	-0.26	0.00	0.24	53	32.89	119	89	49	0	7	0	0
	ROCHESTER	42	22	48	18	32	12	0.00	-0.25	0.00	0.00	0	31.90	110	92	51	0	7	0	0
	ST. CLOUD	41	18	48	14	30	13	0.00	-0.19	0.00	0.76	217	24.77	92	92	53	0	7	0	0
MS	JACKSON	64	50	81	40	57	8	3.44	2.11	1.95	3.45	153	48.77	94	95	71	0	0	5	2
	MERIDIAN	69	52	84	40	60	11	1.60	0.23	0.67	1.62	70	51.90	98	95	62	0	0	4	1
	TUPELO	57	44	79	33	51	8	4.83	3.43	2.44	4.86	204	48.24	93	97	71	0	0	6	3
MO	COLUMBIA	47	28	63	24	38	4	0.37	-0.24	0.37	0.41	39	44.16	117	94	49	0	5	1	0
	KANSAS CITY	46	27	51	22	37	4	0.82	0.44	0.76	0.83	128	49.16	134	93	54	0	6	2	1
	SAINT LOUIS	48	31	72	24	39	3	0.28	-0.46	0.28	0.30	23	43.09	120	91	54	0	5	1	0
	SPRINGFIELD	48	29	70	22	39	1	0.39	-0.39	0.38	0.58	43	47.69	116	96	56	0	4	2	0
MT	BILLINGS	35	21	49	9	28	1	0.00	-0.17	0.00	0.51	182	14.21	97	80	52	0	6	0	0
	BUTTE	29	5	44	-7	17	-1	0.04	-0.05	0.01	0.93	547	15.04	127	89	59	0	7	2	0
	GLASGOW	34	16	42	7	25	8	0.00	-0.08	0.00	0.20	143	14.43	135	89	64	0	7	0	0
	GREAT FALLS	41	26	51	17	34	8	0.00	-0.19	0.00	0.00	0	16.42	112	68	38	0	5	0	0
	KALISPELL	36	26	44	22	31	8	0.19	-0.20	0.05	0.38	58	19.41	126	85	59	0	6	4	0
	MILES CITY	43	20	54	12	32	11	0.00	-0.14	0.00	0.06	25	13.50	99	81	39	0	7	0	0
	MISSOULA	36	24	44	18	30	5	0.02	-0.23	0.01	0.47	115	21.00	165	93	60	0	7	2	0
NE	GRAND ISLAND	47	21	56	18	34	7	0.00	-0.18	0.00	0.01	3	25.90	106	84	33	0	7	0	0
	LINCOLN	48	20	55	19	34	7	0.00	-0.22	0.00	0.03	8	34.06	123	89	36	0	7	0	0
	NORFOLK	48	20	57	16	34	9	0.00	-0.18	0.00	0.02	6	35.05	142	84	33	0	7	0	0
	NORTH PLATTE	46	12	56	7	29	3	0.00	-0.11	0.00	0.00	0	22.43	118	89	28	0	7	0	0
	OMAHA	47	23	52	20	35	7	0.00	-0.25	0.00	0.02	5	39.53	136	91	40	0	7	0	0
	SCOTTSBLUFF	42	11	52	4	26	-1	0.10	-0.04	0.10	0.10	42	16.49	111	82	29	0	7	1	0
	VALENTINE	47	15	56	8	31	7	0.00	-0.08	0.00	0.00	0	24.07	134	82	26	0	7	0	0
NV	ELY	36	7	51	-6	21	-5	0.05	-0.12	0.03	0.32	114	12.23	125	85	35	0	7	1	0
	LAS VEGAS	52	34	60	30	43	-4	0.04	-0.04	0.04	0.04	29	6.96	180	47	18	0	3	1	0
	RENO	40	20	51	15	30	-3	0.00	-0.22	0.00	0.06	16	12.04	175	85	40	0	7	0	0
	WINNEMUCCA	30	6	36	-2	18	-13	0.02	-0.18	0.02	0.19	53	15.31	198	93	68	0	7	1	0
NH	CONCORD	47	25	73	17	36	10	0.22	-0.53	0.22	0.32	24	34.94	101	95	47	0	5	1	0
NJ	NEWARK	55	39	76	29	47	9	0.22	-0.58	0.21	0.24	17	42.67	102	91	47	0	2	2	0
NM	ALBUQUERQUE	39	22	47	11	31	-6	0.23	0.12	0.21	0.23	121	9.85	116	84	35	0	7	2	0
NY	ALBANY	47	30	63	20	39	10	0.25	-0.44	0.25	0.37	31	38.30	111	91	54	0	5	1	0
	BINGHAMTON	46	32	63	27	39	11	0.20	-0.51	0.20	0.41	34	37.91	108	93	58	0	5	1	0
	BUFFALO	50	35	69	27	43	11	0.01	-0.86	0.01	0.10	7	33.38	92	90	62	0	4	1	0
	ROCHESTER	51	31	69	26	41	10	0.08	-0.57	0.08	0.26	23	40.61	134	90	55	0	6	1	0
	SYRACUSE	51	33	70	26	42	12	0.29	-0.47	0.16	0.46	35	35.91	97	92	53	0	4	2	0
NC	ASHEVILLE	61	42	75	27	51	10	1.13	0.33	0.71	1.20	86	45.98	101	96	48	0	2	5	1
	CHARLOTTE	66	48	78	35	57	13	0.12	-0.65	0.11	0.12	9	37.89	93	92	46	0	0	2	0
	GREENSBORO	63	46	78	32	55	13	1.78	1.03	0.83	1.85	145	44.82	110	95	51	0	1	5	2
	HATTERAS	66	57	73	49	62	11	0.04	-0.96	0.04	0.06	3	58.07	109	87	67	0	0	1	0
	RALEIGH	66	46	80	28	56	12	0.19	-0.53	0.13	0.20	16	49.39	125	96	49	0	1	3	0
	WILMINGTON	70	51	82	40	60	10	0.11	-0.69	0.03	0.12	9	59.77	115	87	52	0	0	2	0
ND	BISMARCK	43	18	49	13	30	14	0.08	-0.03	0.00	0.09	47	23.56	155	89	49	0	7	1	0
	DICKINSON	43	23	47	19	33	14	0.00	-0.08	0.00	0.00	0	24.62	155	81	43	0	7	0	0
	FARGO	38	18	46	14	28	14	0.00	-0.14	0.00	0.00	0	31.54	165	90	62	0	7	0	0
	GRAND FORKS	30	12	39	6	21	8	0.00	-0.14	0.00	0.01	4	23.56	131	94	75	0	7	0	0
	JAMESTOWN	40	20	45	13	30	15	0.00	-0.11	0.00	0.00	0	21.65	130	85	50	0	7	0	0
	WILLISTON	36	13	43	4	24	9	0.00	-0.13	0.00	0.23	110	17.31	130	90	60	0	7	0	0
OH	AKRON-CANTON	49	32	67	24	41	8	0.09	-0.61	0.06	0.11	9	38.24	109	97	63	0	5	2	0
	CINCINNATI	53	36	72	23	44	9	0.70	-0.04	0.66	0.78	60	48.33	123	97	55	0	4	2	1
	CLEVELAND	51	35	69	27	43	10	0.19	-0.55	0.17	0.19	15	31.09	89	89	56	0	5	2	0
	COLUMBUS	52	37	72	27	44	10	0.39	-0.29	0.37	0.40	34	34.72	95	96	61	0	3	2	0
	DAYTON	50	35	71	24	42	8	0.29	-0.40	0.23	0.31	26	37.41	107	92	56	0	4	2	0
	MANSFIELD	49	33	67	24	41	9	0.16	-0.59	0.16	0.16	12	36.09	95	94	57	0	5	1	0

Based on 1961-90 normals

Weather Data for the Week Ending December 12, 1998

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP, °F		PRECIP.	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	TOLEDO	49	32	69	24	41	11	0.08	-0.62	0.07	0.08	7	32.01	102	89	51	0	5	2	0
	YOUNGSTOWN	50	32	68	22	41	9	0.13	-0.56	0.12	0.14	12	35.35	99	92	51	0	5	2	0
OK	OKLAHOMA CITY	52	35	67	29	44	3	0.34	0.00	0.34	1.55	263	35.26	108	83	50	0	2	1	0
	TULSA	52	32	70	26	42	1	0.26	-0.29	0.16	1.12	118	46.06	117	92	49	0	5	2	0
OR	ASTORIA	49	41	57	35	45	2	3.68	1.28	1.33	8.11	197	80.72	135	97	57	0	0	7	3
	BURNS	29	7	37	-7	18	-8	0.20	-0.08	0.12	0.64	136	15.80	170	98	69	0	7	3	0
	EUGENE	49	38	63	29	44	2	1.93	-0.04	0.72	3.85	114	45.71	104	96	73	0	1	6	2
	MEDFORD	46	34	59	30	40	1	0.16	-0.61	0.08	0.75	57	28.24	168	99	70	0	3	3	0
	PENDLETON	46	35	56	28	41	5	0.38	0.01	0.25	0.78	120	13.84	125	86	57	0	3	3	0
	PORTLAND	48	40	57	33	44	3	1.76	0.36	0.58	3.01	126	42.35	130	95	71	0	0	6	1
	SALEM	48	39	60	28	44	3	2.14	0.57	0.62	3.90	145	46.16	132	97	78	0	1	6	2
PA	ALLENTOWN	53	32	71	24	43	9	0.33	-0.48	0.31	0.34	24	39.41	95	94	50	0	4	2	0
	ERIE	51	37	69	32	44	11	0.03	-0.84	0.03	0.36	24	30.39	77	83	57	0	2	1	0
	MIDDLETOWN	55	38	72	29	46	11	0.16	-0.60	0.10	0.16	12	45.80	119	84	47	0	3	2	0
	PHILADELPHIA	55	39	71	29	47	9	0.34	-0.43	0.29	0.35	27	31.19	79	87	46	0	2	3	0
	PITTSBURGH	50	35	70	24	43	9	0.13	-0.53	0.12	0.16	14	32.56	93	92	57	0	4	2	0
	WILKES-BARRE	49	32	66	22	40	8	0.14	-0.46	0.14	0.27	26	34.16	98	92	57	0	4	1	0
	WILLIAMSPORT	51	33	69	22	42	9	0.04	-0.68	0.04	0.19	15	39.43	101	91	55	0	4	1	0
RI	PROVIDENCE	53	34	75	23	43	9	0.20	-0.82	0.20	0.22	13	51.55	120	95	53	0	4	1	0
SC	BEAUFORT	73	54	81	41	64	11	0.11	-0.57	0.10	0.11	10	47.61	98	92	49	0	0	1	0
	CHARLESTON	73	52	81	41	63	10	0.40	-0.28	0.39	0.44	39	63.96	129	94	47	0	0	2	0
	COLUMBIA	69	50	80	39	60	11	0.02	-0.74	0.01	0.02	2	44.22	93	89	39	0	0	2	0
	GREENVILLE	64	46	75	36	56	11	0.50	-0.43	0.41	0.50	32	48.24	99	94	46	0	0	4	0
SD	ABERDEEN	45	17	53	14	31	13	0.04	-0.06	0.00	0.06	33	28.39	155	92	41	0	7	1	0
	HURON	46	21	54	16	33	13	0.00	-0.11	0.00	0.05	26	25.03	126	89	39	0	7	0	0
	RAPID CITY	46	16	56	12	31	5	0.00	-0.11	0.00	0.02	11	21.06	129	76	29	0	7	0	0
	SIOUX FALLS	43	17	50	15	30	9	0.00	-0.17	0.00	0.06	19	30.96	132	92	44	0	7	0	0
TN	BRISTOL	57	40	72	27	49	9	2.23	1.47	1.23	2.35	181	40.96	106	95	59	0	2	4	2
	CHATTANOOGA	61	47	76	33	54	11	2.80	1.63	1.18	2.81	141	50.58	101	95	61	0	0	5	3
	KNOXVILLE	59	44	74	30	52	10	3.26	2.24	1.65	3.43	198	51.40	116	96	58	0	1	5	2
	MEMPHIS	55	43	76	32	49	4	2.79	1.43	0.93	3.18	136	51.79	106	99	75	0	1	6	3
	NASHVILLE	55	42	76	29	48	6	4.53	3.46	1.93	5.47	297	49.67	111	95	60	0	1	6	3
TX	ABILENE	51	35	66	29	43	-4	0.72	0.47	0.52	1.32	307	13.82	58	93	42	0	3	3	1
	AMARILLO	46	26	53	22	35	-3	0.09	-0.02	0.05	0.43	226	17.17	89	90	46	0	7	2	0
	AUSTIN	57	47	78	42	52	-1	1.29	0.85	0.77	1.44	187	38.98	127	88	57	0	0	3	2
	BEAUMONT	63	53	81	45	58	2	2.26	1.21	1.54	2.30	125	57.26	106	97	74	0	0	5	2
	BROWNSVILLE	68	57	85	44	63	0	0.34	0.06	0.09	0.36	77	20.00	77	94	59	0	0	3	0
	CORPUS CHRISTI	65	53	84	44	59	-1	0.37	0.09	0.26	0.40	86	30.30	103	95	67	0	0	3	0
	DEL RIO	60	42	76	34	51	-2	0.36	0.22	0.21	0.36	152	29.19	163	90	43	0	0	4	0
	EL PASO	48	32	53	23	40	-6	0.01	-0.13	0.01	0.27	123	6.71	78	77	38	0	4	1	0
	FORT WORTH	54	42	75	34	48	-1	2.31	1.89	1.13	3.84	519	33.65	103	91	46	0	0	6	1
	GALVESTON	63	54	79	46	58	1	3.15	2.35	2.45	3.23	236	51.51	128	96	71	0	0	5	1
	HOUSTON	62	49	84	40	56	1	3.79	3.00	2.28	3.88	285	54.66	124	96	66	0	0	4	2
	LUBBOCK	49	28	58	23	39	-3	0.00	-0.14	0.00	0.27	112	13.08	71	88	36	0	6	0	0
	MIDLAND	49	28	63	19	39	-7	0.56	0.42	0.51	0.58	242	5.15	35	93	41	0	5	2	1
	SAN ANGELO	54	33	68	26	43	-4	0.44	0.25	0.31	0.44	133	12.94	65	96	49	0	3	3	0
	SAN ANTONIO	58	46	78	38	52	-2	0.33	-0.03	0.26	0.38	58	42.09	140	86	61	0	0	3	0
	VICTORIA	62	50	80	42	56	-1	2.96	2.48	2.02	3.32	415	46.09	127	99	77	0	0	5	2
	WACO	55	41	76	33	48	-2	2.94	2.50	2.58	3.40	442	34.40	111	95	62	0	0	4	1
	WICHITA FALLS	53	36	70	29	44	0	0.80	0.50	0.41	1.88	362	22.98	82	87	51	0	2	3	0
UT	SALT LAKE CITY	32	17	37	11	25	-7	0.25	-0.08	0.21	0.95	167	23.48	162	91	55	0	7	3	0
VT	BURLINGTON	46	26	64	21	36	11	0.13	-0.46	0.08	0.29	27	50.33	152	90	56	0	6	4	0
VA	LYNCHBURG	61	40	78	27	51	11	1.66	0.94	0.76	1.75	137	46.11	118	96	49	0	2	4	2
	NORFOLK	64	51	79	41	58	12	0.97	0.27	0.82	0.97	82	50.40	118	92	55	0	0	3	1
	RICHMOND	63	44	81	33	54	12	1.70	0.96	0.80	1.70	136	43.44	106	90	45	0	0	3	2
	ROANOKE	59	44	77	29	52	12	1.12	0.43	0.76	1.16	98	43.87	112	84	44	0	1	3	1
	WASH/DULLES	59	37	79	25	48	10	0.79	0.05	0.64	0.79	62	36.69	96	93	51	0	4	4	1
WA	HANFORD	39	27	49	24	33	–	0.14	–	0.06	0.16	–	6.17	–	96	72	0	7	2	0
	OLYMPIA	48	38	56	32	42	3	3.46	1.61	1.16	5.73	181	51.09	112	100	87	0	1	7	3
	QUILLAYUTE	48	39	53	33	43	2	7.39	3.86	2.83	12.16	201	95.10	99	99	85	0	0	7	4
	SEATTLE-TACOMA	47	40	57	36	43	2	2.33	0.98	0.91	3.36	144	38.36	114	97	79	0	0	7	2
	SPOKANE	35	27	44	22	31	2	0.86	0.11	0.37	1.74	185	16.21	108	96	74	0	5	6	0
	YAKIMA	39	24	48	16	32	1	0.11	-0.20	0.06	0.32	60	8.34	117	99	73	0	6	2	0
WV	BECKLEY	51	37	67	26	44	8	2.30	1.56	1.39	2.46	195	46.74	120	99	59	0	4	4	2
	CHARLESTON	54	39	74	27	47	8	1.39	0.59	0.79	1.51	110	46.66	116	97	58	0	4	3	1
	ELKINS	52	32	70	20	42	8	0.79	-0.01	0.40	0.90	66	45.00	105	93	55	0	4	3	0
	HUNTINGTON	54	40	74	27	47	8	1.59	0.82	1.05	1.68	127	42.63	106	98	47	0	3	3	1
WI	EAU CLAIRE	42	20	49	15	31	12	0.00	-0.25	0.00	0.00	0	28.95	93	90	51	0	7	0	0
	GREEN BAY	44	24	52	21	34	11	0.01	-0.36	0.01	0.06	9	28.53	102	87	56	0	7	1	0
	MADISON	45	25	56	18	35	11	0.22	-0.22	0.22	0.22	28	39.87	134	89	50	0	7	1	0
	MILWAUKEE	45	30	56	27	38	11	0.71	0.16	0.71	0.75	78	34.50	109	87	49	0	6	1	1
WY	CASPER	35	16	47	7	25	0	0.02	-0.15	0.02	0.02	7	14.43	119	69	34	0	7	1	0
	CHEYENNE	33	12	41	-1	23	-6	0.13	0.02	0.13	0.15	79	10.51	74	69	37	0	7	1	0
	LANDER	34	11	48	3	23	0	0.07	-0.07	0.07	0.12	50	17.17	135	75	38	0	7	1	0
	SHERIDAN	42	12	55	3	27	3	0.00	-0.17	0.00	0.06	21	17.30	123	85	38	0	7	0	0

NOTE: These data are preliminary and subject to change. In the past, precipitation totals from a number of stations have been incomplete.

Autumn Weather Review

Highlights: Frequent, locally heavy rainfall eliminated moisture concerns across most of the Plains, but caused flooding in portions of Kansas, Oklahoma, and eastern Texas. Long-term drought persisted, however, in portions of the southern High Plains. In the Northwest, mid- to late-November precipitation improved soil moisture in major winter wheat areas but left soils saturated west of the Cascades. In contrast, drought intensified from portions of the Ohio Valley to the Mid-Atlantic region, where 5-month rainfall deficits topped 10 inches in some locations. During November, dryness, exacerbated by unusual warmth, spread into the Southeast. Tropical activity during the autumn included Hurricane Earl, which made landfall in western Florida on September 3; Tropical Storm Frances, which soaked areas from the western and central Gulf Coast northward from September 10-13; Hurricane Georges, which skirted the Florida Keys on September 25, 3 days before slamming into the Mississippi coast; and Tropical Storm Mitch, which crossed southern Florida on November 5.

Temperatures were consistently above normal from the Rockies to the Appalachians, resulting in autumn departures of +2 to +5°F. Near- to below-normal temperatures prevailed in California and the Great Basin, particularly during October, producing departures of -4 to +1°F. Near-normal readings were also observed in the Northeast.

September: Warm, dry weather in the Corn Belt rapidly pushed corn and soybeans to maturity and allowed harvesting to proceed at an ahead-of-normal pace. Mostly dry weather also prevailed on the Plains, especially in western areas, slowing winter wheat planting as growers awaited rain. Drought stretched into a seventh month on the southern Plains and through a third month in parts of the Ohio Valley and Mid-Atlantic States.

Above-normal temperatures prevailed nearly nationwide, producing well over 400 daily-record highs and more than a dozen monthly record highs. Along the West Coast and in the Southwest, a late-month cool-down held monthly departures below +5°F. Near-normal readings prevailed in California. Farther north and east, however, temperatures ranged from 4 to 9°F above normal across the interior Northwest and throughout the Plains. Corn Belt temperatures were 2 to 7°F above normal.

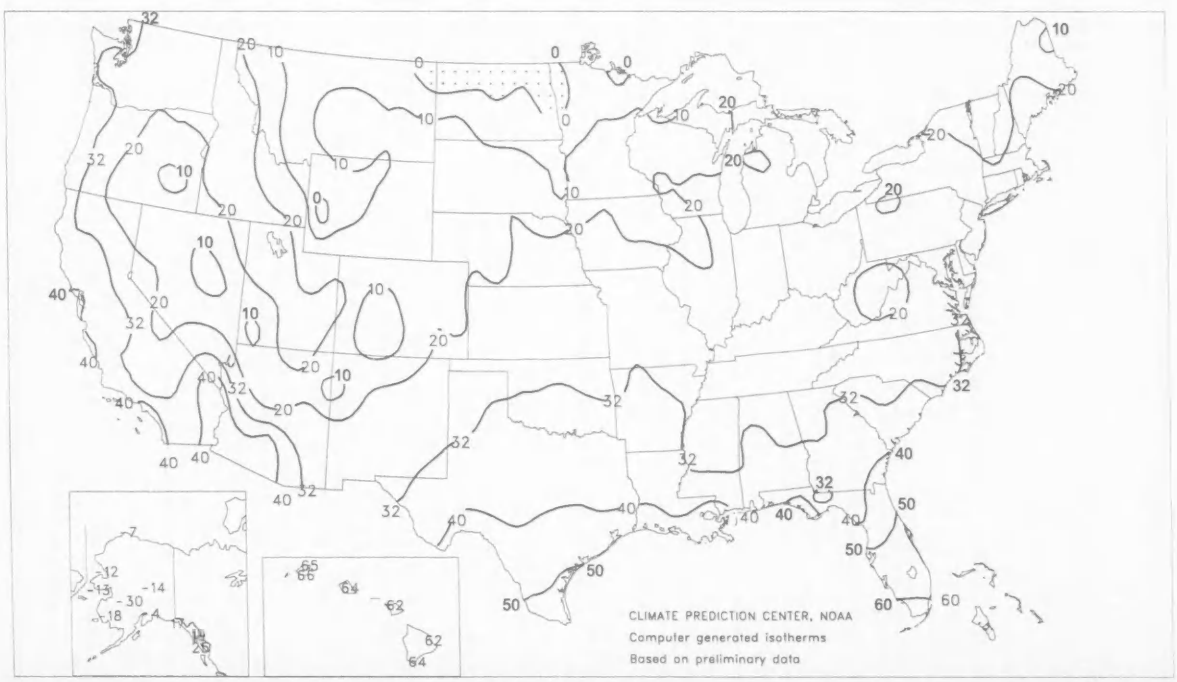
October: A very wet pattern unfolded across the Plains, eliminating topsoil moisture deficits, but slowing cotton harvesting and causing some mid- to late-month flooding. Torrential rain struck southeastern Texas from October 17-19, submerging low-lying areas, stranding or washing away livestock, and damaging fences and farm buildings. At month's end, heavy rain in parts of Oklahoma and Kansas left standing water and caused wash-outs in low-lying winter wheat fields.

Warm weather (up to 3°F above normal) accompanied the Plains' rainfall, however, fostering winter wheat establishment in most areas. Corn Belt harvesting advanced at an ahead-of-normal pace despite above-normal rainfall, as warm weather kept soils from becoming too wet. In the Southeast, where readings ranged from 2 to 5°F above normal, dry weather reduced topsoil moisture, but promoted summer-crop harvesting and winter wheat planting. Unfavorably dry weather also developed in the Pacific Northwest. In contrast, unusually cool, showery conditions affected the remainder of the West. Monthly temperatures ranged from 2 to 5°F below normal in California and the Great Basin.

November: *A complete summary appeared in last week's Bulletin.*

Autumn Extreme Minimum Temperature (°F)

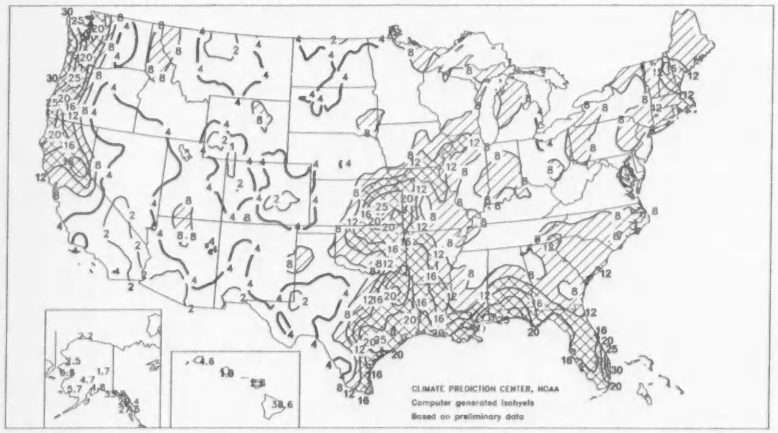
SEP - NOV 1998



Although an early-November cold snap in the East produced sub-freezing temperatures as far south as Tallahassee, FL (31°F on November 7), portions of the South Central States had no freeze through November. In Oklahoma, Oklahoma City's first freeze on December 8 broke a record that had stood since November 30, 1934. Similarly in Texas, Midland's first freeze (32°F on December 7) erased a 1954 standard. Farther north, infrequent sub-zero cold was confined to a few areas from northern Montana eastward into the Red River Valley. Grand Forks, ND noted -9°F on November 20.

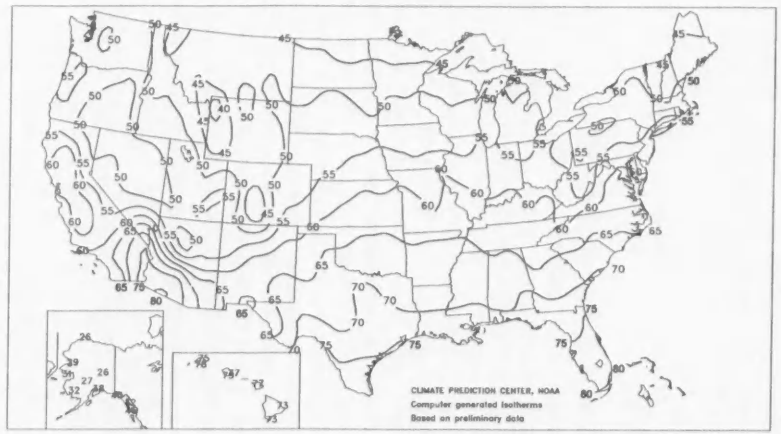
Autumn Total Precipitation (Inches)

SEP - NOV 1998



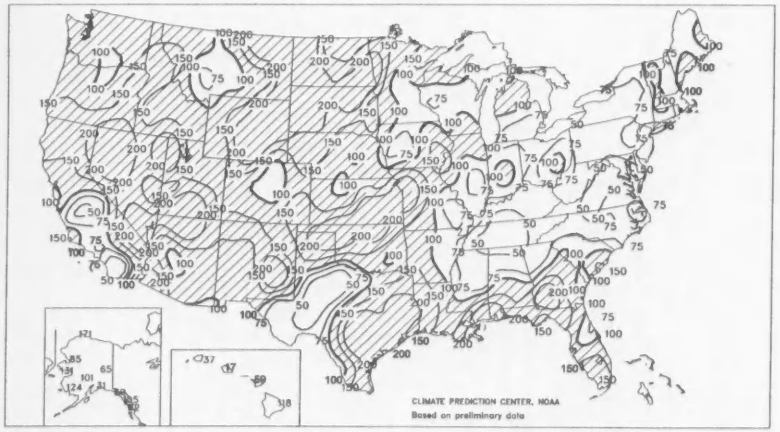
Autumn Average Temperature (°F)

SEP - NOV 1998



Autumn Percent of Normal Precipitation

SEP - NOV 1998



Autumn Departure from Normal Average Temperature (°F)

SEP - NOV 1998

National Agricultural Summary

December 7 - 13, 1998

HIGHLIGHTS

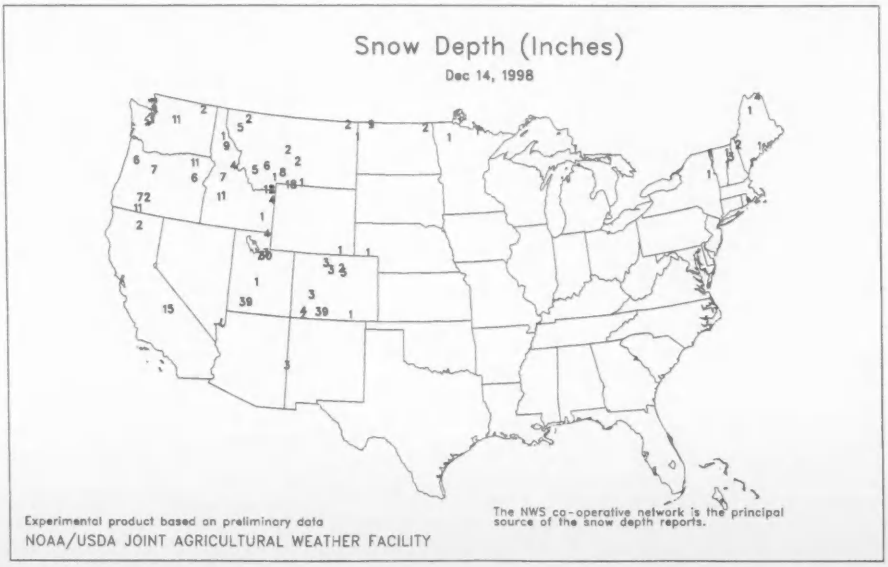
Winter wheat growth ended in the Great Plains and Corn Belt as temperatures fell to more seasonable levels. Across the northern Plains and upper Mississippi Valley, winter kill was not an immediate threat, as temperatures remained well above normal. Seeding of small grains and winter forages continued in California, but were hampered by wet soils in many areas. Cool, cloudy weather slowed growth of emerging crops in the San Joaquin Valley, while wheat fields in the Sacramento Valley were growing well with additional moisture. Poor drying conditions hampered cotton harvesting in the Central Valley, and the lint quality was declining in unharvested fields. Vegetable harvest activity was slowed by frost, but fruit and nut harvest was active. Cold overnight temperatures did little or no damage to fruit crops. In Texas, small grain growth was slowed in the Plains by freezing temperatures and snow. Cotton growth ended following the hard freeze and final harvest, temporarily halted by snow, resumed late in the week. Grain sorghum and peanut harvests were nearly complete by the end of the week in the Plains. In the South Central region of Texas, the final peanut harvest was hampered by wet fields. Hot, dry weather continued to delay small grain emergence in the Southeast, where soil moisture increasingly became short. However, the dry weather allowed vegetable planting and harvesting activities to proceed on schedule in Florida. Picking quality and color were good, and growth of recently planted vegetable crops was normal.

U.S. Crop Production Highlights

The following information was released by USDA's Agricultural Statistics Board on December 11, 1998. Forecasts refer to December 1.

All cotton production is forecast at 13.5 million bales, up 2 percent (%) from last month, but down 28% from 1997. Yield is expected to average 621 pounds per harvested acre, up 9 pounds from last month, but down 59 pounds from last year. Texas production was increased 300,000 bales from November's forecast, but California's output was reduced 100,000 bales.

All orange production forecast for 1998-99 remains at 11.0 million tons, down 21% from last year's record-large crop of 13.9 million tons. Florida's all orange forecast is 190 million boxes (8.55 million tons), 22% less than the record-large 244 million boxes produced last season. Early and midseason varieties in Florida are forecast at 112 million boxes (5.04 million tons), 20% lower than last season. Florida's Valencia forecast of 78 million boxes (3.51 million tons) is 25% below last season's 104 million boxes. California's all orange production forecast of 62 million boxes (2.33 million tons) is carried forward from October and is 16% less than last season. The Navel orange forecast is 34 million boxes (1.28 million tons), down 23% from last year, and the Valencia forecast is 28 million boxes (1.05 million tons), 7% less than a year ago.


Snow Depth (Inches)
Dec 14, 1998
Experimental product based on preliminary data
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY
The NWS co-operative network is the principal source of the snow depth reports.

International Weather and Crop Summary

December 6 - 12, 1998

HIGHLIGHTS

FSU-WESTERN: Stormy weather further increased protective snow cover.

EUROPE: Cold weather kept winter grains dormant in most areas. In central and southern Spain, prolonged dryness limited moisture for winter grain development.

NORTHWESTERN AFRICA: Dry weather returned to winter grain areas in Morocco, helping planting activities. Additional rain is needed to ensure uniform crop emergence and establishment.

AUSTRALIA: Winter grain harvest advanced in the southeast.

SOUTH ASIA: Summer crop harvesting and winter planting made good progress in most areas.

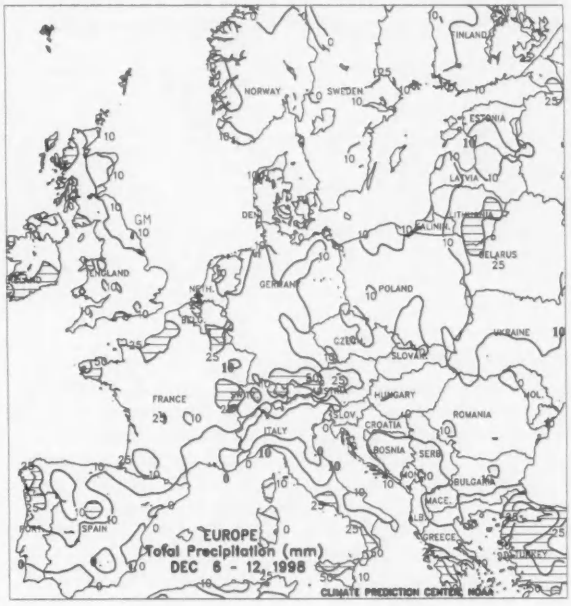
SOUTH AFRICA: Scattered showers and seasonable warmth maintained favorable prospects for corn and other summer crops.

SOUTHEAST ASIA: Typhoon Faith struck the central Philippines, causing flooding and slowing sugarcane and main-season rice harvesting, but increasing moisture supplies for second-season grains.

EASTERN ASIA: Winter wheat entered dormancy across the North China Plain.

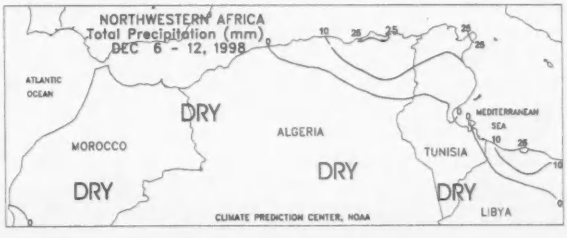
SOUTH AMERICA: Timely rain benefited soybean planting and germination in Rio Grande do Sul, Brazil, and central Argentina.

CENTRAL AMERICA: Dry weather continued to aid flood recovery efforts in Honduras.



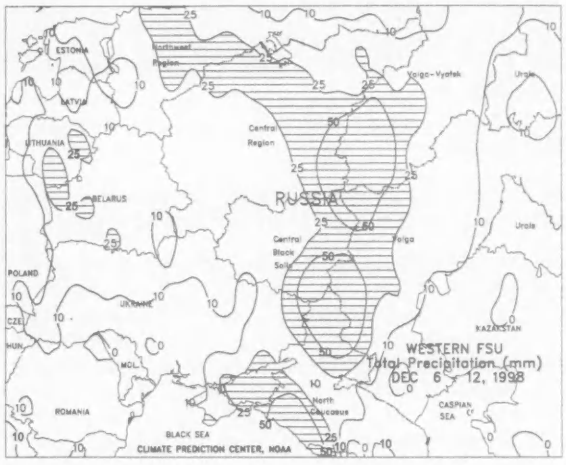
EUROPE

Unseasonably cold weather continued to prevail across most of Europe, keeping winter grains dormant. The exceptions were in parts of western Europe (southern England, western France, and northern Spain), where a warming trend (weekly temperatures averaging 1 to 3 degrees C above normal) developed during the week. Farther east, weekly temperatures averaged 2 to 6 degrees C below normal in central Europe and 6 to 9 degrees C below normal in the east. Cool, showery weather extended from England southward through France, hampering late-season fieldwork. Light snow (2-12 mm, liquid equivalent) fell over central and eastern Europe, increasing snow cover. Lowest temperatures during the week (-12 to -22 degrees C) were observed in Poland, eastern Germany, the Czech Republic, Slovakia, Hungary, Romania, and eastern Serbia. Snow cover was sufficient in these areas to protect winter crops from widespread winterkill. In southern Europe, persistent dryness in central and southern Spain limited moisture for winter grain development. Widespread showers (10-25 mm or more) fell in southern Italy and Greece, maintaining abundant moisture conditions for the early development of winter grains.



NORTHWESTERN AFRICA

Dry weather returned to winter grain areas in Morocco, favoring rapid winter grain planting. Although rainfall the previous week improved planting prospects for winter grains, additional rain is needed to ensure uniform crop emergence and sufficient establishment. Farther east, light to moderate showers (7-17 mm) in northeastern Algeria and northern Tunisia maintained adequate moisture for newly emerging winter grains. Unseasonably cold weather (weekly temperatures averaging 1 to 3 degrees C below normal) prevailed across Morocco, Algeria, and Tunisia, slowing crop emergence and early growth.

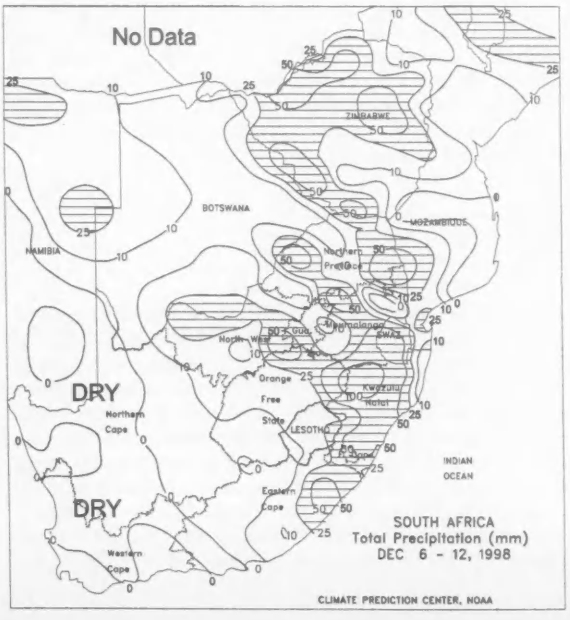


FSU-WESTERN

Stormy weather prevailed over most of the region. Widespread snow (10-25 mm or more, liquid equivalent) fell from the Baltics, Belarus, and northern Ukraine, eastward across most of Russia. Strong winds were observed in some areas, causing considerable drifting of snow. The heaviest snowfall (25-64 mm, liquid equivalent) maintained a deep snow cover in the eastern portion of the Central Region, southern Volga Vyatsk, and central Volga Valley. In southern Russia, moderate to heavy rain (25-50 mm or more) improved soil moisture levels in the North Caucasus, extreme southern tip of Central Black Soils Region, and lower Volga Valley. The precipitation in these areas changed to snow at week's end, with a protective snow cover extending as far south as the Black Sea Coast. Lowest temperatures (extreme minimum temperatures ranging from -10 to -21 degrees C) during the week were observed in northern Russia, the Baltics, Belarus, and most of Ukraine.

EASTERN ASIA

Seasonably cold, dry weather prompted winter wheat to enter dormancy across the North China Plain. Light rain (less than 5 mm) fell across the Yangtze Valley, where winter grain and oilseed planting continues. Minimum temperatures ranged from 2 to -3 degrees C across the Yangtze Valley, burning back vegetative winter grains.

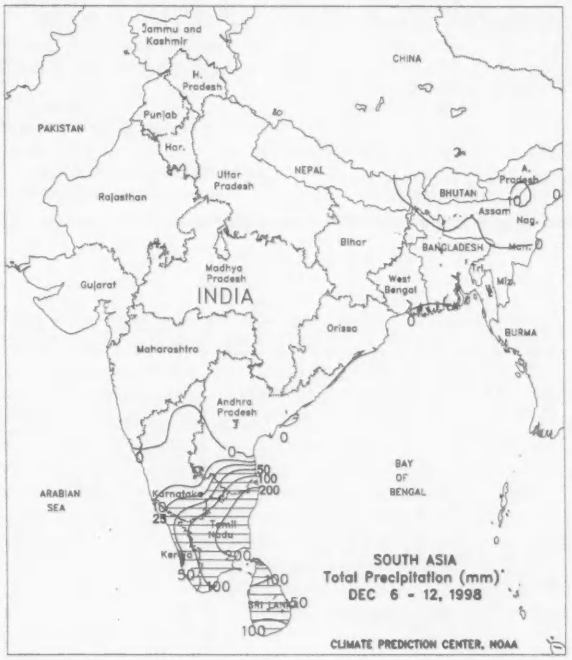


SOUTH AFRICA

Scattered showers (10-25 mm or more, locally exceeding 50 mm) continued throughout the corn belt. High temperatures ranged from 25 to 30 degrees C, benefiting vegetative summer crop growth. Planting should be winding down throughout the region, with most areas experiencing adequate to abundant moisture reserves for crop establishment and vegetative development. Corn and other summer crops planted in October (mainly in eastern sections of the corn belt) will be in or near reproductive phases of development by the end of the month. Along the coast, near- to above-normal rainfall (25-50 mm or more) continued in sugarcane areas of KwaZulu-Natal and portions of Eastern Cape. In Western Cape, mostly dry weather was favorable for the final wheat harvest.

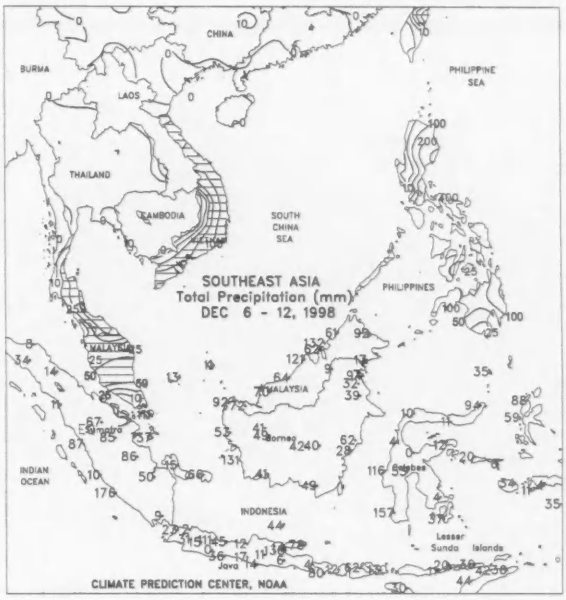
SOUTH ASIA

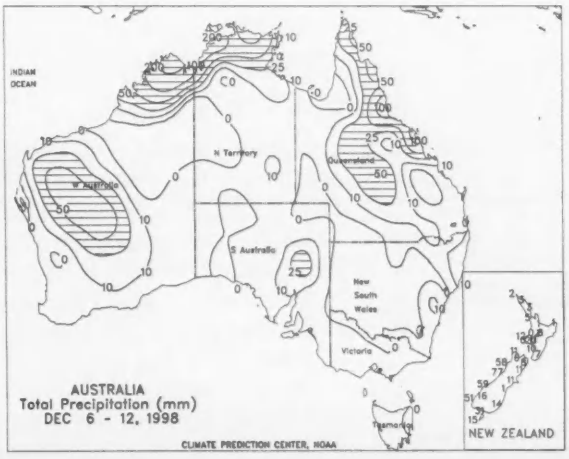
Warm, dry weather continued to dominate the region, favoring summer grain, oilseed, and cotton harvests and promoting winter grain and oilseed plantings. The exception was India's southern tip, where very heavy rainfall (100-200 mm) likely flooded some rice areas. *(This is the final weekly summary of the season. Coverage will continue on a monthly basis until June 1999.)*



SOUTHEAST ASIA

Typhoon Faith barreled through the central Philippines on December 10, with sustained winds of 65 knots (75 mph). The storm helped to produce heavy showers (100-400 mm) across most of the islands, causing flooding, slowing sugarcane and main-season rice harvesting, but increasing moisture supplies for second-season grains. Faith then entered the South China Sea and approached the south-central coast of Vietnam by week's end, producing heavy rain (100-200 mm) along the coast and causing minor crop damage. Faith made landfall in central Vietnam on December 14, with sustained winds of 35 knots (40 mph). Seasonably dry weather favored main-season rice harvesting in Thailand. Showers (10-40 mm, with isolated amounts greater than 75 mm) maintained moisture supplies for rice and corn in Java. Showers (40-90 mm) increased moisture supplies for oil palm across peninsular Malaysia.





AUSTRALIA

Dry, much warmer-than-normal weather (temperatures 3-4 degrees C above normal) maintained favorable conditions for wheat and barley harvesting across the southeast. To the north, however, showers (5-25 mm or more) returned to the Darling Downs and western agricultural districts in southern Queensland late in the week. Fortunately, seasonably warm, dry weather aided cotton and sorghum development prior to the rainfall. Heavy tropical showers (50-100 mm or more) over Queensland's northern sugarcane areas hampered planting and harvesting activities. Elsewhere, scattered showers (5-28 mm) caused minor disruptions in Western Australia's winter grain harvest, generally in the northern and eastern growing areas. In New Zealand, showers were mostly light (25 mm or less) in the main crop and pasture areas.

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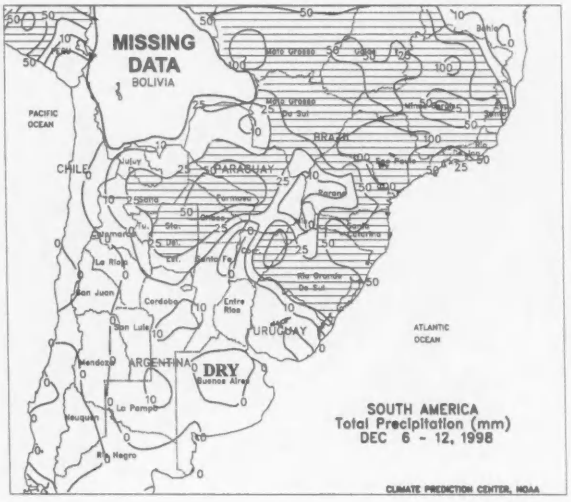

SOUTH AMERICA

In central Argentina, timely rain (10-40 mm, with isolated amounts greater than 100 mm) fell across northern Buenos Aires, southern Cordoba, and southern Santa Fe on December 13 (too late to appear on the current rainfall maps). This rain boosted soil moisture that had become limited due to 2 to 3 weeks of drier-than-normal weather. However, widespread rainfall is still needed across the region to ensure favorable summer crop prospects. Dry weather continued to stress filling wheat across southern Buenos Aires. Widespread rain (20-60 mm) increased soil moisture for cotton development in northern Argentina. According to reports as of December 4, corn was 81 percent planted versus 84 percent last year, sunseed was 93 percent planted versus 91 percent last year, and soybeans were 65 percent planted versus 65 percent last year. Wheat harvesting was 27 percent complete. In southern Brazil, rain (20-40 mm) brought relief to stressed soybeans and corn in Rio Grande do Sul. Farther north, widespread showers (10-75 mm) maintained favorable soil moisture for summer crop development. Heavier showers (100-170 mm) possibly caused flooding in Sao Paulo. In southern Paraguay, scattered rain (5-18 mm) brought limited relief to dry topsoils.

Climate Prediction Center, W/NP52
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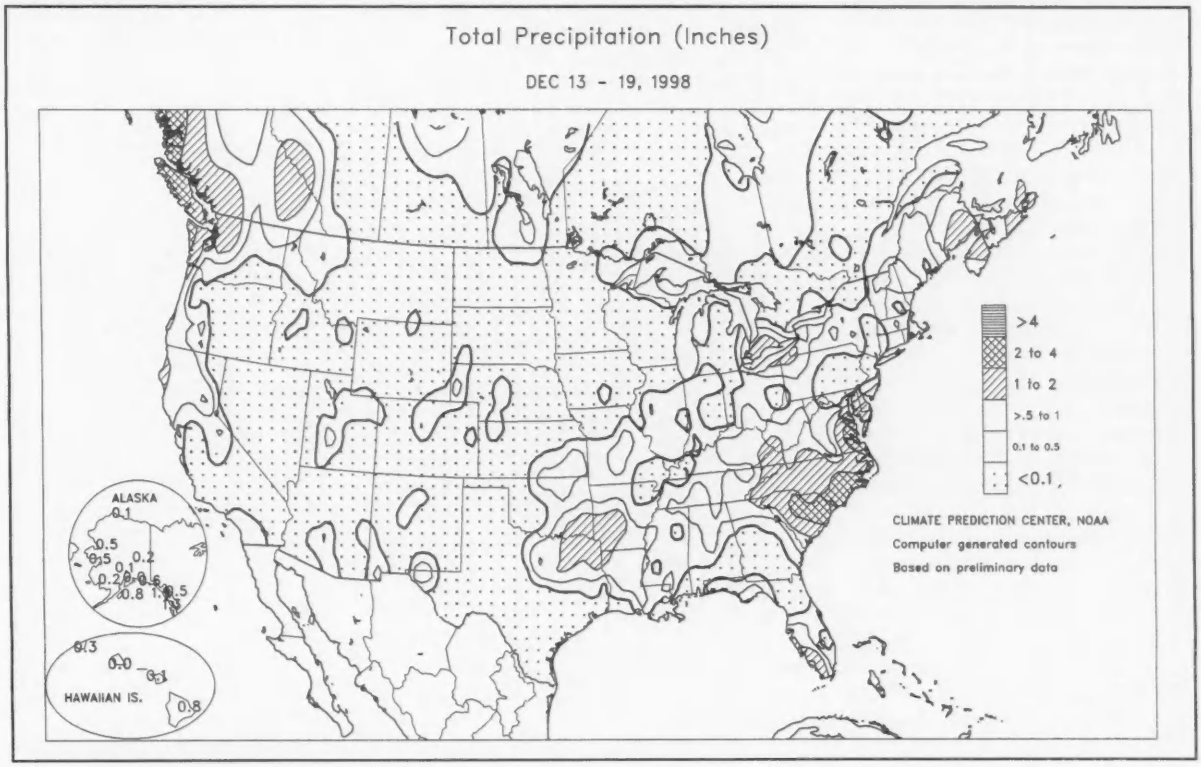

HIGHLIGHTS

December 13 - 19, 1998

A late-week Arctic blast abruptly ended a month-long run of unseasonably mild weather. By week's end, cold air was in place across the **northern and central Plains** and the **Northwest**, with even more frigid air poised to spread southward. Light snow blanketed portions of the **northern and central Plains** prior to the arrival of the coldest air, helping to insulate hard red winter wheat. No snow fell, however, across soft white winter wheat areas of the **Northwest**, although the crop had achieved dormancy. Warmth in advance of the Arctic intrusion boosted weekly temperatures 4 to 14°F above normal across the **Plains** and **Midwest**. Readings averaged as much as 10°F above normal

(Continued on page 2)

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(Continued from front cover)

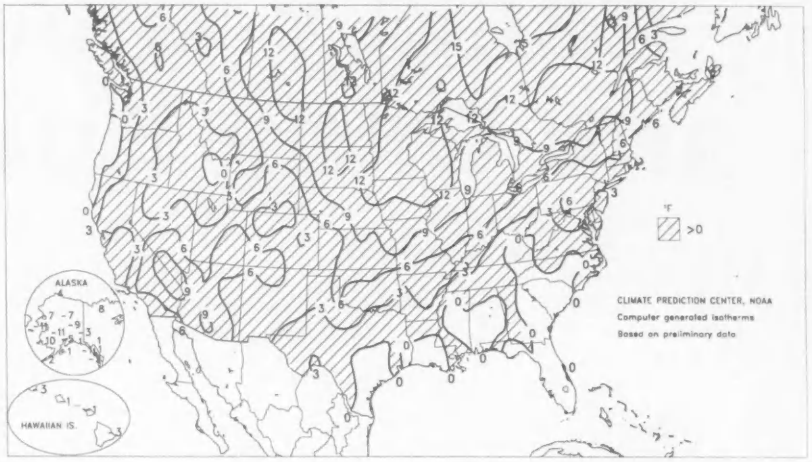
in the **Southwest** and up to 7°F above normal in the **Northwest** and **Northeast**. Near-normal temperatures prevailed from **southern Texas** to the **Southeast**. Significant rain was confined to portions of the **Southeastern States**. From **eastern Virginia** to the **Carolinas**, early-week showers eased long-term drought and improved soil moisture for fall-sown crops.

Warmth preceding the Arctic blast resulted in more than six dozen daily-record highs, mostly from the **West Coast States** to the **Midwest**. On Sunday, **Bakersfield, CA** posted a daily-record high of 79°F. A day later, highs of 55°F in **Minneapolis, MN**, 62°F in **Dickinson, ND**, and 70°F in **Valentine, NE** were among more than three dozen records. **Death Valley (Furnace Creek), CA** registered a December-record high of 88°F on the 16th, breaking a record that had stood since December 6, 1927. Elsewhere in **California**, consecutive daily-record highs were established on December 16-17 at **Oakland** (78 and 71°F) and downtown **San Francisco** (71 and 69°F). On the latter date, **Miles City, MT** (64°F) tallied a daily-record high.

In the **Midwest** and **East**, a gradual cool-down helped to cold-harden winter wheat and ended some impressive streaks related to lack of snow and cold. On December 16, the season's first trace of snow was observed in **Detroit, MI**, breaking their record of November 30, 1918 and 1963. **Detroit's** snow-free period of 267 days (March 24 to December 15), eclipsed their 1946 standard by nearly 2 weeks. Two days later in **Indiana**, the latest first measurable snowfall on record occurred in **Fort Wayne** and **South Bend**. Also on Friday, **Atlanta, GA** (28°F) marked their latest first freeze, breaking a record set on December 11, 1994. Meanwhile in **New York**, **Albany's** high temperature of 30°F and low of 19°F tied records set in 1923 for their latest first occurrences of a sub-freezing maximum and sub-20°F minimum. On Saturday, as Arctic air drove southward through the **Plains**, temperatures dipped below normal in **Sioux Falls, SD** for the first time since November 20, ending a 28-day span during which readings averaged 15°F above normal. **Omaha, NE** (14°F) logged their first sub-20°F low temperature on December 19, shattering a record set on December 13, 1915. Light snow accompanied the sharply colder weather into the **Plains**, delivering **Omaha's** first measurable precipitation (0.02 inch on December 20) since November 10.

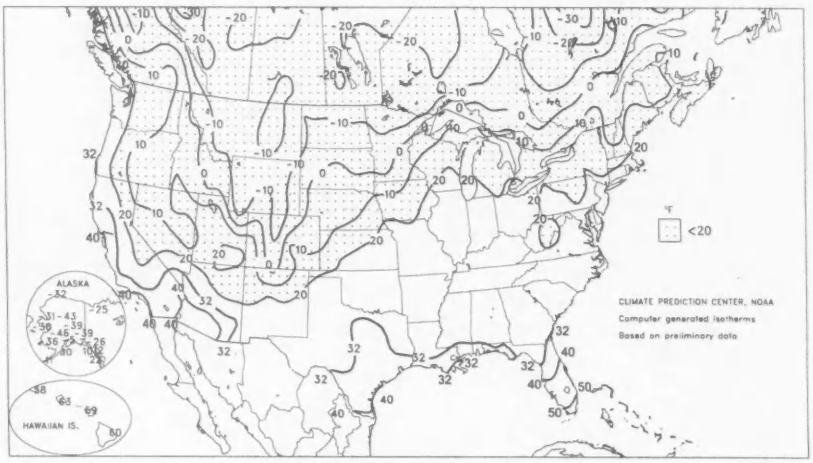
Departure of Average Temperature from Normal (°F)

DEC 13 - 19, 1998



Extreme Minimum Temperature (°F)

DEC 13 - 19, 1998



In the **Southeast**, early-to midweek rainfall totaled more than 2 inches in some locations from **eastern Virginia** to the **Carolinas**. Late-week showers produced more than 1 inch in the **Arklatex region**. In **eastern Maine**, late-week snowfall totaled a half-foot or more in a few areas, accompanied by wind gusts in excess of 50 mph along the coast. Heavy snow developed across the **Intermountain West** at week's end in conjunction with the Arctic outbreak. In **southern Utah**, 24-hour snowfall (December 19-20) included 15 inches in **Milford** and 11 inches in **Richfield**.

Below-normal temperatures prevailed in most of **Alaska**, with departures reaching -11°F in western areas. **Cold Bay** logged a daily-record low (11°F) on Sunday, and **Kodiak** noted a daily-record snowfall (11.0 inches) on Monday. Nevertheless, milder-than-normal conditions continued on **Alaska's North Slope**. On Saturday, **Prudhoe Bay's** daily-record high of 33°F contrasted sharply with highs in **western Montana** of -10°F in **Butte** and -8°F in **Great Falls**.

National Weather Data for Selected Cities

Weather Data for the Week Ending December 19, 1998

Data Provided by Climate Prediction Center (301-763-8000 EXT. 7503) and the Southern Regional Climate Center

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP, °F		PRECIP.	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL	BIRMINGHAM	53	36	59	28	44	-1	0.52	-0.64	0.40	2.46	80	62.94	120	92	52	0	3	2	0
	HUNTSVILLE	53	34	58	26	44	1	0.38	-0.97	0.33	3.54	98	42.18	77	95	52	0	4	3	0
	MOBILE	63	41	78	33	52	-1	0.08	-1.13	0.05	1.29	40	85.58	138	97	53	0	0	2	0
	MONTGOMERY	58	38	63	27	48	-1	0.10	-1.09	0.08	0.57	18	46.97	91	93	41	0	3	3	0
AK	ANCHORAGE	18	6	24	-5	12	-5	0.00	-0.25	0.00	0.79	118	11.13	72	91	56	0	7	0	0
	BARROW	-1	-15	28	-32	-8	3	0.14	0.11	0.12	0.33	471	4.82	113	74	64	0	7	2	0
	FAIRBANKS	-7	-25	14	-39	-16	-9	0.15	-0.04	0.11	0.44	85	10.56	100	84	71	0	7	2	0
	JUNEAU	33	24	41	12	29	1	0.47	-0.52	0.25	3.96	147	62.79	120	95	74	0	6	4	0
	KODIAK	34	24	40	10	29	-2	0.82	-0.72	0.53	3.90	97	105.61	163	89	56	0	5	4	1
	NOME	2	-10	34	-30	-4	-11	0.52	0.33	0.35	0.75	144	24.07	165	90	69	0	7	3	0
AZ	FLAGSTAFF	47	26	50	17	36	7	0.00	-0.55	0.00	0.52	35	27.48	125	75	34	0	5	0	0
	PHOENIX	73	51	79	46	62	8	0.44	0.22	0.42	0.98	147	10.72	147	73	25	0	0	2	0
	TUCSON	72	48	77	44	60	8	0.09	-0.16	0.00	0.58	91	13.74	119	57	21	0	0	1	0
	YUMA	73	50	80	44	61	5	0.06	-0.05	0.02	0.17	63	4.84	156	70	28	0	0	2	0
AR	FORT SMITH	56	32	58	27	44	4	0.39	-0.30	0.39	2.79	138	44.46	111	96	46	0	5	1	0
	LITTLE ROCK	56	36	66	29	46	4	0.92	-0.18	0.47	3.08	99	40.70	83	86	42	0	1	2	0
CA	BAKERSFIELD	64	38	79	33	51	4	0.01	-0.13	0.01	0.57	154	13.24	243	94	44	0	0	1	0
	EUREKA	54	35	64	28	45	-4	1.69	0.36	1.37	5.13	138	63.42	180	99	57	0	2	3	1
	FRESNO	58	36	69	34	47	2	0.10	-0.21	0.05	0.65	78	17.28	174	99	45	0	0	2	0
	LOS ANGELES	70	52	82	48	61	4	0.04	-0.32	0.04	0.85	88	25.90	229	80	37	0	0	1	0
	REDDING	63	40	77	31	51	7	0.80	-0.64	0.57	2.13	64	61.20	197	77	31	0	1	2	1
	SACRAMENTO	57	36	62	33	47	2	0.09	-0.46	0.07	0.59	40	28.74	175	100	59	0	0	2	0
	SAN DIEGO	67	51	79	47	59	2	0.03	-0.33	0.02	0.69	71	15.78	169	93	45	0	0	1	0
	SAN FRANCISCO	58	46	70	41	52	3	0.20	-0.48	0.17	0.89	50	32.59	178	91	56	0	0	2	0
CO	ALAMOSA	47	4	61	-1	26	8	0.00	-0.11	0.00	0.00	0	8.84	93	82	22	0	7	0	0
	CO SPRINGS	48	20	63	4	34	4	0.02	-0.09	0.02	0.17	57	16.24	101	70	24	0	7	1	0
	DENVER	48	19	65	-3	34	3	0.07	-0.07	0.04	0.12	29	16.04	106	76	26	0	6	2	0
	GRAND JUNCTION	49	20	54	18	35	6	0.00	-0.14	0.00	0.02	5	8.86	105	82	32	0	7	0	0
	PUEBLO	53	15	65	10	34	3	0.04	-0.05	0.04	0.12	43	11.56	105	86	28	0	7	1	0
CT	BRIDGEPORT	44	29	48	25	37	2	0.20	-0.59	0.20	0.45	21	41.38	102	91	48	0	6	1	0
	HARTFORD	43	25	50	20	34	5	0.06	-0.82	0.06	0.29	12	44.81	105	82	46	0	6	1	0
DC	WASHINGTON	49	36	55	30	42	3	0.49	-0.23	0.49	1.48	76	35.67	95	88	37	0	1	1	0
DE	WILMINGTON	47	32	54	27	40	4	0.14	-0.66	0.12	0.56	26	36.08	91	86	48	0	4	2	0
FL	DAYTONA BEACH	69	49	82	39	59	-1	0.54	-0.04	0.53	0.91	58	40.08	86	89	53	0	0	2	1
	JACKSONVILLE	64	42	77	29	53	-2	0.03	-0.58	0.02	0.09	6	56.52	113	97	58	0	1	2	0
	KEY WEST	75	66	82	57	70	-1	0.80	0.36	0.71	1.22	96	37.57	97	88	64	0	0	3	1
	MIAMI	74	60	83	53	67	-2	0.16	-0.25	0.05	0.83	73	69.13	126	86	50	0	0	3	0
	ORLANDO	71	50	81	40	61	-1	0.59	0.11	0.35	0.60	45	44.70	94	94	53	0	0	2	0
	PENSACOLA	64	43	76	37	54	0	0.28	-0.70	0.28	2.48	97	66.49	110	90	52	0	0	1	0
	TALLAHASSEE	65	39	75	26	52	-1	0.28	-0.88	0.28	0.35	11	57.57	90	94	42	0	4	1	0
	TAMPA	69	52	76	43	61	-2	0.39	-0.11	0.39	0.39	30	54.64	127	94	59	0	0	1	0
	WEST PALM BEACH	74	57	84	46	65	-2	0.12	-0.42	0.12	1.49	91	85.08	109	86	49	0	0	1	0
GA	ATHENS	53	34	63	26	44	-1	0.12	-0.80	0.05	0.68	28	49.17	102	91	46	0	2	4	0
	ATLANTA	52	37	61	28	45	1	0.24	-0.74	0.11	0.79	30	45.03	92	91	43	0	1	3	0
	AUGUSTA	57	34	73	22	46	-1	0.40	-0.38	0.18	0.48	24	48.76	108	98	41	0	3	3	0
	COLUMBUS	60	40	67	30	50	1	0.11	-1.03	0.11	1.23	41	32.83	67	84	38	0	1	1	0
	MACON	59	37	70	25	48	-1	0.12	-0.87	0.12	0.73	29	42.55	99	86	39	0	2	1	0
	SAVANNAH	61	42	73	26	51	0	0.45	-0.22	0.35	0.71	42	47.87	100	95	52	0	1	2	0
HI	HILO	76	64	78	60	70	-2	0.80	-1.91	0.39	7.73	100	106.03	85	99	71	0	0	5	0
	HONOLULU	80	66	82	63	73	-1	0.00	-0.87	0.00	0.37	16	4.00	19	88	55	0	0	0	0
	KAHULUI	82	64	84	59	73	0	0.06	-0.67	0.05	0.34	18	5.93	30	91	47	0	0	2	0
	LIHUE	76	64	78	58	70	-3	0.33	-0.82	0.16	1.48	48	25.66	82	93	66	0	0	4	0
ID	BOISE	39	23	54	14	31	2	0.00	-0.30	0.00	0.50	60	15.56	135	90	47	0	7	0	0
	LEWISTON	41	28	54	12	35	0	0.03	-0.25	0.02	0.33	44	17.10	142	78	46	0	6	2	0
	POCATELLO	33	10	43	-8	22	-3	0.06	-0.19	0.04	0.47	70	13.23	113	93	62	0	7	1	0
IL	CHICAGO/O'HARE	46	30	53	25	38	11	0.00	-0.56	0.00	1.10	68	37.44	107	85	50	0	6	0	0
	MOLINE	48	27	55	21	37	12	0.03	-0.48	0.00	0.86	60	47.93	125	88	50	0	6	1	0
	PEORIA	47	28	55	24	37	11	0.22	-0.34	0.13	1.57	99	42.26	119	85	49	0	5	2	0
	ROCKFORD	44	26	50	20	35	11	0.00	-0.46	0.00	0.84	63	39.87	112	90	54	0	7	0	0
	SPRINGFIELD	47	28	56	21	37	8	0.28	-0.35	0.16	0.52	30	44.80	131	89	47	0	6	2	0
IN	EVANSVILLE	49	31	51	22	40	5	0.26	-0.58	0.13	0.81	35	41.01	98	95	48	0	5	3	0
	FORT WAYNE	44	26	50	21	35	7	0.22	-0.45	0.15	0.59	32	37.91	113	93	54	0	6	3	0
	INDIANAPOLIS	46	29	51	22	38	7	0.15	-0.61	0.01	0.46	22	48.83	126	91	44	0	6	3	0
	SOUTH BEND	46	27	52	21	37	8	0.30	-0.46	0.24	1.73	82	34.94	92	94	53	0	7	4	0
IA	BURLINGTON	48	33	59	23	40	--	0.00	0.00	0.00	1.38	107	52.19	148	76	51	0	2	0	0
	CEDAR RAPIDS	44	26	53	21	35	13	0.02	-0.33	0.02	0.10	10	45.34	137	89	52	0	7	1	0
	DES MOINES	44	25	55	15	35	11	0.00	-0.30	0.00	0.07	8	39.61	121	89	49	0	8	0	0
	DUBUQUE	42	27	50	21	34	13	0.00	-0.44	0.00	0.12	9	43.30	115	86	54	0	7	0	0
	SIOUX CITY	46	22	59	12	34	13	0.00	-0.17	0.00	0.03	6	30.96	121	87	43	0	7	0	0
	WATERLOO	42	25	55	17	33	13	0.04	-0.26	0.04	0.05	6	44.59	134	88	52	0	6	1	0
KS	CONCORDIA	50	27	58	18	38	9	0.00	-0.19	0.00	0.10	18	33.17	116	83	44	0	7	0	0
	DODGE CITY	52	26	62	21	39	7	0.00	-0.14	0.00	0.18	43	21.66	102	84	37	0	7	0	0
	GOODLAND	48	20	67	6	34	5	0.08	0.00	0.08	0.08	31	18.28	102	79	34	0	7	1	0
	TOPEKA	52	29	59	25	41	10	0.00	-0.32	0.00	1.19	126	42.14	121	83	40	0	6	0	0

Based on 1961-90 normals

Weather Data for the Week Ending December 19, 1998

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP, °F		PRECIP.	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	WICHITA	62	29	67	24	41	6	0.25	-0.03	0.25	1.05	133	34.66	120	94	51	0	6	1	0
KY	JACKSON	44	31	51	26	37	-1	1.10	0.11	0.80	3.75	137	51.98	108	95	53	0	5	4	1
	LEXINGTON	44	29	49	22	37	1	0.82	-0.10	0.58	2.30	92	48.70	113	96	60	0	6	3	1
	LOUISVILLE	47	33	52	27	40	3	0.64	-0.19	0.47	1.36	59	46.21	107	96	52	0	5	3	0
	PADUCAH	51	32	53	25	42	5	0.20	-0.89	0.14	1.94	66	54.20	114	92	48	0	4	2	0
LA	BATON ROUGE	62	39	71	31	51	-2	0.35	-0.92	0.35	1.11	33	54.03	92	96	48	0	2	1	0
	LAKE CHARLES	65	39	76	32	52	-1	0.03	-1.13	0.03	2.13	69	55.10	104	98	45	0	1	1	0
	NEW ORLEANS	64	45	80	38	54	0	0.00	-1.32	0.00	0.94	27	77.72	130	90	45	0	0	0	0
	SHREVEPORT	61	38	65	30	49	2	0.82	-0.10	0.82	4.92	192	49.29	111	91	42	0	1	1	1
ME	CARIBOU	30	16	41	4	23	9	0.30	-0.43	0.20	1.02	50	35.27	100	88	55	0	7	3	0
	PORTLAND	41	23	51	16	32	6	0.45	-0.58	0.26	0.71	24	54.17	127	83	44	0	7	2	0
MD	BALTIMORE	48	30	55	23	39	3	0.35	-0.42	0.35	0.90	43	34.02	86	83	40	0	4	1	0
MA	BOSTON	45	31	52	25	38	4	0.25	-0.66	0.25	0.68	27	52.53	131	81	46	0	4	1	0
	WORCESTER	41	28	50	21	34	7	0.25	-0.66	0.25	0.77	30	45.89	99	74	41	0	6	1	0
MI	ALPENA	40	23	50	12	31	8	0.29	-0.17	0.13	1.09	85	32.74	117	91	61	0	6	3	0
	GRAND RAPIDS	44	24	48	19	34	7	0.02	-0.63	0.00	0.94	51	31.98	91	89	51	0	7	1	0
	HOUGHTON LAKE	39	19	47	12	29	7	0.15	-0.29	0.10	0.95	78	24.30	88	97	70	0	7	4	0
	LANSING	44	20	51	14	32	5	0.04	-0.50	0.00	1.01	66	28.38	95	91	57	0	7	1	0
	MARQUETTE	35	19	49	8	27	10	2.55	1.98	2.26	0.95	58	18.51	67	87	60	0	7	3	2
	MUSKEGON	43	26	50	20	34	6	0.07	-0.62	0.07	1.20	63	28.19	90	90	55	0	6	1	0
MN	DULUTH	33	17	40	-3	25	13	0.17	-0.11	0.12	0.74	94	32.85	111	91	56	0	7	3	0
	INT'L FALLS	28	11	47	-20	19	13	0.18	-0.01	0.13	0.28	54	22.46	93	87	61	0	7	2	0
	MINNEAPOLIS	30	21	55	9	30	12	0.07	-0.17	0.03	0.31	44	32.96	118	87	63	0	7	2	0
	ROCHESTER	30	22	52	9	30	13	0.04	-0.19	0.02	0.04	6	31.94	109	93	66	0	7	2	0
	ST. CLOUD	37	18	53	1	28	14	0.06	-0.13	0.05	0.82	152	24.83	92	91	63	0	7	2	0
MS	JACKSON	59	36	72	28	47	-1	0.51	-0.84	0.51	3.97	110	49.29	93	97	43	0	4	1	1
	MERIDIAN	58	35	63	26	47	-2	0.31	-1.10	0.31	1.93	52	52.22	96	95	44	0	3	1	0
	TUPELO	55	33	62	26	44	1	0.41	-1.02	0.40	5.30	139	48.69	91	91	48	0	4	2	0
MO	COLUMBIA	49	30	58	26	39	8	0.70	0.13	0.62	1.11	68	44.86	117	87	48	0	5	2	1
	KANSAS CITY	51	30	58	24	40	10	0.00	-0.38	0.00	0.83	62	49.16	133	84	46	0	5	0	0
	SAINT LOUIS	50	31	58	28	41	7	0.23	-0.47	0.18	0.53	27	43.32	119	86	41	0	4	2	0
	SPRINGFIELD	51	29	57	23	40	5	0.74	0.02	0.54	1.32	63	48.43	115	89	43	0	5	2	1
MT	BILLINGS	41	22	60	-8	31	6	0.05	-0.12	0.01	0.56	124	14.25	96	80	45	0	5	2	0
	BUTTE	31	7	48	-26	19	2	0.28	0.17	0.14	1.21	432	15.32	128	89	56	0	7	2	0
	GLASGOW	36	17	50	-8	26	11	0.08	0.00	0.03	0.26	127	14.51	135	88	57	0	7	3	0
	GREAT FALLS	37	16	57	-16	26	3	0.10	-0.09	0.07	0.10	20	16.52	111	74	46	0	6	3	0
	KALISPELL	35	19	47	-2	27	4	0.11	-0.28	0.03	0.49	47	19.53	124	86	51	0	7	4	0
	MILES CITY	40	18	63	-9	29	10	0.04	-0.10	0.01	0.10	27	13.54	98	89	45	0	7	2	0
	MISSOULA	34	18	47	-5	26	3	0.38	0.11	0.19	0.85	125	21.38	164	88	52	0	7	3	0
NE	GRAND ISLAND	48	21	57	9	35	10	0.00	-0.17	0.00	0.01	2	25.90	105	83	37	0	7	0	0
	LINCOLN	49	22	58	15	36	10	0.00	-0.20	0.00	0.03	5	34.06	122	84	40	0	7	0	0
	NORFOLK	47	23	58	9	35	12	0.00	-0.17	0.00	0.02	4	35.05	141	84	40	0	7	0	0
	NORTH PLATTE	47	18	62	6	32	8	0.01	-0.10	0.00	0.01	3	22.44	117	87	34	0	7	1	0
	OMAHA	47	25	57	17	36	11	0.00	-0.22	0.00	0.02	3	39.53	134	87	42	0	7	0	0
	SCOTTSBLUFF	47	13	64	-1	30	4	0.50	0.36	0.36	0.60	162	16.99	113	90	35	0	7	2	0
	VALENTINE	48	18	70	2	33	11	0.00	-0.08	0.00	0.00	0	24.08	133	83	31	0	7	0	0
NV	ELY	46	17	59	5	32	7	0.06	-0.11	0.02	0.38	84	12.29	123	80	31	0	7	1	0
	LAS VEGAS	66	44	73	36	55	10	0.00	-0.08	0.00	0.04	18	6.96	177	56	25	0	0	0	0
	RENO	50	22	61	16	36	4	0.09	-0.13	0.04	0.15	25	12.13	171	88	29	0	7	1	0
	WINNEMUCCA	39	17	48	8	28	-1	0.00	-0.19	0.00	0.19	34	15.31	193	95	55	0	7	0	0
NH	CONCORD	40	19	51	12	30	6	0.16	-0.57	0.11	0.47	23	35.10	99	90	48	0	7	2	0
NJ	NEWARK	46	32	50	26	39	3	0.02	-0.75	0.02	0.26	12	42.69	100	82	45	0	3	1	0
NM	ALBUQUERQUE	53	27	56	23	40	5	0.00	-0.11	0.00	0.23	77	9.85	114	78	27	0	6	0	0
NY	ALBANY	40	25	46	19	33	7	0.13	-0.54	0.13	0.50	27	38.43	109	87	51	0	7	1	0
	BINGHAMTON	37	25	46	21	31	5	0.14	-0.54	0.09	0.55	29	38.06	106	88	54	0	7	2	0
	BUFFALO	42	30	48	21	36	7	0.28	-0.56	0.17	0.38	16	33.66	90	94	60	0	4	3	0
	ROCHESTER	42	29	53	23	36	7	0.59	-0.03	0.32	0.86	49	41.21	133	88	54	0	5	4	0
	SYRACUSE	42	27	54	22	34	6	0.37	-0.36	0.21	0.83	40	36.29	96	85	52	0	6	4	0
NC	ASHEVILLE	50	29	57	22	39	0	0.90	0.10	0.61	2.11	96	46.87	101	89	41	0	5	3	1
	CHARLOTTE	52	32	63	23	42	0	1.10	0.31	0.57	1.21	56	38.98	93	91	45	0	3	5	1
	GREENSBORO	49	32	61	27	40	0	2.22	1.45	1.30	4.05	198	47.02	114	89	48	0	4	5	2
	HATTERAS	58	44	67	31	51	2	2.48	1.47	1.50	2.54	93	60.57	111	86	62	0	1	4	1
	RALEIGH	50	31	60	24	41	-2	1.69	0.96	0.95	1.90	97	51.09	127	95	52	0	4	5	1
	WILMINGTON	61	39	69	31	50	1	1.31	0.49	0.66	1.74	80	61.39	116	89	51	0	1	5	2
ND	BISMARCK	39	13	61	-7	26	12	0.04	-0.07	0.01	0.13	43	23.60	154	88	54	0	7	1	0
	DICKINSON	41	15	62	-7	28	11	0.01	-0.07	0.01	0.01	5	24.63	155	87	44	0	7	1	0
	FARGO	31	13	48	-7	22	11	0.01	-0.13	0.00	0.01	3	31.55	164	94	66	0	7	1	0
	GRAND FORKS	27	10	41	-10	19	9	0.17	0.03	0.17	0.18	49	23.73	131	93	77	0	7	1	0
	JAMESTOWN	33	14	53	-7	24	11	0.07	-0.04	0.01	0.07	23	21.72	130	94	66	0	7	2	0
	WILLISTON	37	15	53	-8	26	13	0.04	-0.10	0.03	0.27	77	17.38	129	89	54	0	7	2	0
OH	AKRON-CANTON	41	26	47	19	34	3	0.44	-0.23	0.23	0.55	29	38.68	108	99	60	0	6	3	0
	CINCINNATI	45	28	49	20	36	3	0.33	-0.38	0.16	1.11	55	48.66	121	98	53	0	6	3	0
	CLEVELAND	44	28	51	22	36	5	0.69	-0.02	0.40	0.88	44	31.78	90	93	56	0	6	4	0
	COLUMBUS	44	29	49	24	37	5	0.23	-0.42	0.16	0.63	34	34.94	94	98	53	0	5	3	0
	DAYTON	44	29	50	24	36	5	0.10	-0.57	0.09	0.41	22	37.51	105	86	50	0	6	2	0
	MANSFIELD	42	27	48	22	34	5	0.17	-0.53	0.05	0.33	16	36.26	94	96	53	0	6	3	0

Based on 1961-90 normals

Weather Data for the Week Ending December 19, 1998

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP, °F		PRECIP.	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL IN., SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	TOLEDO	44	25	52	18	35	7	0.08	-0.62	0.04	0.14	7	32.07	100	92	53	0	7	3	0
	YOUNGSTOWN	41	27	48	17	34	4	0.53	-0.14	0.28	0.67	36	35.89	99	94	54	0	6	4	0
OK	OKLAHOMA CITY	56	34	63	30	45	6	0.09	-0.22	0.09	1.84	180	35.35	107	91	46	0	4	1	0
	TULSA	56	33	62	26	45	6	0.52	0.04	0.49	1.84	115	48.60	117	90	40	0	3	2	0
OR	ASTORIA	47	37	57	28	42	0	0.89	-1.50	0.55	9.02	139	81.63	131	95	67	0	2	6	1
	BURNS	43	18	56	4	31	6	0.08	-0.18	0.05	0.73	100	15.89	166	85	42	0	7	4	0
	EUGENE	43	33	54	24	38	-3	0.18	-1.77	0.18	4.02	75	45.88	100	99	78	0	4	1	0
	MEDFORD	40	31	58	23	36	-2	0.22	-0.54	0.13	0.97	47	28.46	162	99	70	0	5	3	0
	PENDLETON	44	30	56	12	37	3	0.00	-0.36	0.00	0.76	75	13.82	120	84	51	0	6	0	0
	PORTLAND	46	35	57	25	40	0	0.30	-1.11	0.28	3.32	88	42.65	126	91	59	0	2	2	0
	SALEM	45	32	56	23	38	-1	0.18	-1.36	0.17	4.01	95	46.27	126	96	71	0	4	2	0
PA	ALLENTOWN	44	25	48	19	35	3	0.03	-0.76	0.03	0.37	17	39.44	93	86	47	0	7	1	0
	ERIE	43	30	51	18	36	5	0.91	0.09	0.34	1.27	54	31.30	78	88	53	0	4	4	0
	MIDDLETOWN	47	31	52	22	39	6	0.02	-0.71	0.02	0.18	9	45.82	117	81	40	0	4	1	0
	PHILADELPHIA	47	34	54	27	41	5	0.13	-0.64	0.09	0.48	23	31.32	78	75	39	0	2	2	0
	PITTSBURGH	43	28	49	23	36	4	0.28	-0.38	0.10	0.44	24	32.84	92	88	51	0	6	3	0
	WILKES-BARRE	40	26	47	19	33	3	0.03	-0.53	0.03	0.34	21	34.23	97	87	53	0	7	1	0
	WILLIAMSPORT	41	24	45	18	32	2	0.12	-0.56	0.08	0.31	16	39.56	100	89	47	0	6	3	0
RI	PROVIDENCE	45	28	51	24	37	4	0.08	-0.91	0.08	0.30	11	51.63	118	86	50	0	5	1	0
SC	BEAUFORT	60	42	71	28	51	-1	0.31	-0.42	0.28	0.54	29	48.04	96	95	48	0	1	2	0
	CHARLESTON	60	41	71	29	51	0	1.53	0.82	1.16	1.96	106	66.47	130	96	48	0	1	5	1
	COLUMBIA	56	37	72	25	46	0	1.36	0.55	1.08	1.45	69	45.65	94	90	35	0	1	3	1
	GREENVILLE	51	33	62	25	42	-1	1.72	0.78	1.03	2.22	88	48.96	101	91	48	0	3	3	1
SD	ABERDEEN	37	17	55	-3	27	12	0.11	0.03	0.05	0.17	85	28.50	155	92	59	0	7	4	0
	HURON	40	20	64	-1	30	12	0.00	-0.11	0.00	0.05	17	25.03	126	91	49	0	7	0	0
	RAPID CITY	47	18	70	-1	33	9	0.04	-0.07	0.00	0.06	20	21.10	128	79	32	0	7	1	0
	SIOUX FALLS	41	19	57	3	30	12	0.00	-0.16	0.00	0.06	13	30.96	131	93	46	0	7	0	0
TN	BRISTOL	49	28	53	21	38	0	1.15	0.38	1.00	3.82	185	42.43	108	97	50	0	5	3	1
	CHATTANOOGA	54	34	59	26	44	3	0.86	-0.34	0.48	3.67	115	51.44	100	90	42	0	4	2	0
	KNOXVILLE	49	32	54	25	40	0	0.59	-0.45	0.27	4.02	145	51.98	115	93	52	0	4	3	0
	MEMPHIS	53	38	60	32	45	2	0.30	-1.03	0.28	3.48	95	52.09	104	89	50	0	1	2	0
	NASHVILLE	52	31	59	24	41	1	0.36	-0.70	0.20	5.84	201	50.04	110	93	48	0	4	2	0
TX	ABILENE	61	36	64	29	48	3	0.07	-0.15	0.05	1.39	214	13.89	58	91	36	0	3	2	0
	AMARILLO	56	28	64	24	42	6	0.00	-0.08	0.00	0.43	159	17.17	89	78	34	0	6	0	0
	AUSTIN	64	43	67	37	53	2	0.05	-0.37	0.05	1.49	125	39.03	125	88	43	0	0	1	0
	BEAUMONT	66	41	78	34	54	-1	0.03	-1.04	0.03	2.33	80	57.30	104	95	39	0	0	1	0
	BROWNSVILLE	75	46	82	39	61	-1	0.01	-0.27	0.01	0.37	49	20.02	77	96	43	0	0	1	0
	CORPUS CHRISTI	70	43	79	38	57	-1	0.01	-0.27	0.01	0.41	55	30.31	102	97	48	0	0	1	0
	DEL RIO	68	38	76	32	53	1	0.00	-0.14	0.00	0.39	97	29.19	162	93	36	0	1	0	0
	EL PASO	60	35	64	24	48	4	0.10	-0.04	0.08	0.37	103	6.80	78	80	39	0	2	2	0
	FORT WORTH	59	38	66	33	49	2	0.66	0.25	0.66	4.50	391	34.31	104	91	47	0	0	1	1
	GALVESTON	65	49	76	44	57	1	0.01	-0.76	0.01	3.33	153	51.61	126	94	50	0	0	1	0
	HOUSTON	67	40	77	33	53	0	0.08	-0.69	0.01	3.98	166	54.74	122	96	40	0	0	1	0
	LUBBOCK	58	27	65	24	43	3	0.00	-0.11	0.00	0.27	77	13.08	71	88	32	0	6	0	0
	MIDLAND	59	32	63	27	45	1	0.02	-0.12	0.02	0.60	162	5.17	35	93	42	0	6	1	0
	SAN ANGELO	62	33	66	28	48	2	0.04	-0.13	0.03	0.48	98	12.98	64	97	39	0	5	1	0
	SAN ANTONIO	66	38	74	33	52	0	0.02	-0.31	0.01	0.40	41	42.11	136	90	36	0	0	2	0
	VICTORIA	67	41	75	36	54	-2	0.10	-0.35	0.00	3.42	271	48.19	126	100	47	0	0	1	0
	WACO	60	37	66	33	49	1	0.68	0.27	0.67	4.08	343	35.08	112	99	54	0	0	2	1
	WICHITA FALLS	58	36	63	31	47	4	0.09	-0.21	0.09	1.97	240	23.07	81	92	45	0	1	1	0
UT	SALT LAKE CITY	38	23	44	19	30	1	0.02	-0.31	0.02	0.97	108	23.50	149	94	56	0	7	1	0
VT	BURLINGTON	38	25	47	14	32	9	0.16	-0.38	0.11	0.44	28	50.50	150	83	52	0	7	3	0
VA	LYNCHBURG	48	29	60	21	38	-1	0.79	0.05	0.01	2.41	119	48.77	116	83	47	0	5	2	1
	NORFOLK	51	39	60	34	45	1	2.48	1.75	1.91	3.38	177	52.80	122	96	61	0	0	4	1
	RICHMOND	49	33	58	26	41	1	1.98	1.24	1.81	3.63	181	45.39	108	90	46	0	3	5	1
	ROANOKE	50	31	59	23	41	3	0.57	-0.10	0.50	1.75	95	44.46	111	78	39	0	4	2	1
	WASH/DULLES	49	31	55	19	40	5	0.41	-0.32	0.41	1.19	59	37.09	95	81	37	0	3	1	0
WA	HANFORD	43	26	57	14	35	–	0.03	–	0.03	0.21	–	6.22	–	83	51	0	6	1	0
	OLYMPIA	44	32	58	22	38	0	0.80	-1.02	0.56	6.49	130	51.85	109	100	73	0	3	5	1
	QUILLAYUTE	45	34	53	23	40	0	4.41	0.91	1.87	16.57	174	99.52	100	94	73	0	3	5	2
	SEATTLE-TACOMA	45	38	54	22	41	0	1.34	0.00	1.18	4.66	127	39.68	114	94	69	0	1	5	1
	SPOKANE	36	24	48	5	30	3	0.30	-0.25	0.21	2.02	135	16.50	106	87	57	0	6	2	0
	YAKIMA	43	24	54	15	33	4	0.12	-0.21	0.12	0.45	52	8.46	113	90	49	0	6	1	0
WV	BECKLEY	43	28	50	19	35	1	0.89	0.15	0.83	3.33	166	47.61	120	95	55	0	5	4	1
	CHARLESTON	43	28	50	25	36	-1	0.73	-0.04	0.35	2.22	104	47.40	115	90	54	0	6	4	0
	ELKINS	44	22	51	15	33	1	0.32	-0.48	0.14	1.22	58	45.32	104	95	41	0	7	4	0
	HUNTINGTON	44	29	49	23	37	0	0.70	-0.07	0.41	2.39	114	43.33	108	93	55	0	5	4	0
WI	EAU CLAIRE	40	22	54	9	31	14	0.11	-0.14	0.06	0.11	16	29.06	96	93	53	0	7	3	0
	GREEN BAY	42	22	51	19	32	12	0.00	-0.34	0.00	0.06	6	28.53	101	96	49	0	7	0	0
	MADISON	44	26	52	21	35	14	0.00	-0.42	0.00	0.22	18	39.87	132	83	50	0	6	0	0
	MILWAUKEE	43	27	50	20	35	11	0.02	-0.51	0.02	0.77	51	34.52	107	83	53	0	6	1	0
WY	CASPER	41	16	55	-10	29	5	0.18	0.04	0.08	0.20	47	14.61	119	75	34	0	8	2	0
	CHEYENNE	43	17	58	-8	30	3	0.19	0.11	0.10	0.34	126	10.69	75	80	33	0	7	2	0
	LANDER	42	15	58	-9	28	8	0.12	-0.02	0.07	0.24	65	17.30	135	82	38	0	7	2	0
	SHERIDAN	41	16	66	-10	28	6	0.06	-0.11	0.04	0.12	27	17.36	122	88	39	0	7	2	0

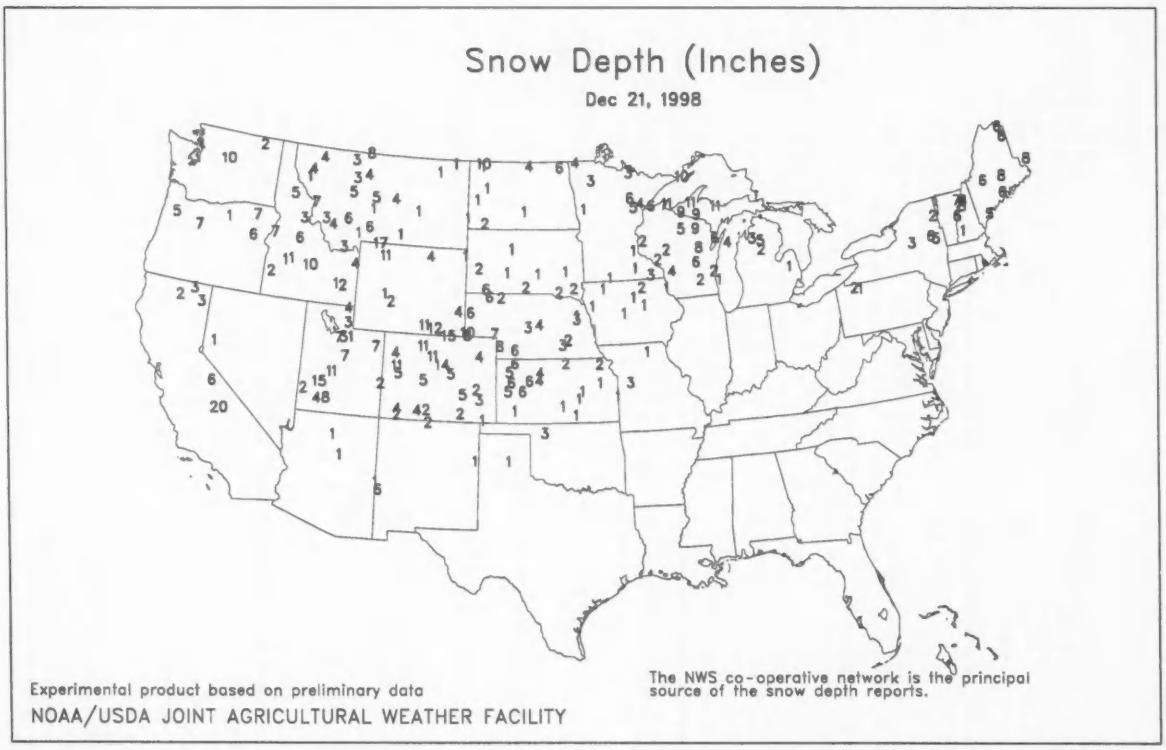
NOTE: These data are preliminary and subject to change. In the past, precipitation totals from a number of stations have been incomplete.

National Agricultural Summary

December 14 - 20, 1998

HIGHLIGHTS

A frigid blast of Arctic air pushed southward late in the week, bringing the lowest temperatures of the winter to the Northwest, northern halves of the Rockies and Great Plains, and the western Corn Belt. Most winter wheat fields in the northern Plains had some snow cover, providing some protection from the sudden cold, windy conditions. In the southern Plains, daytime temperatures were warm enough to promote growth until the cold air arrived near the end of the week. The colder weather did not hinder fieldwork, as scattered fertilizing and tillage activities continued in the Great Plains, Corn Belt, Mississippi Delta, and Southeast. In South Dakota, soils were firm enough to allow farmers to harvest most of the remaining corn and sorghum crops. Dry weather also aided harvest efforts in the southern Plains, where a few cotton and sorghum fields remained unharvested. Northern Florida experienced below-freezing readings, but vegetable and fruit crops in central and southern areas of the state were not affected. In California, growers were harvesting vegetables in the Imperial and Coastal Valleys, pruning orchards in the Sacramento Valley, and planting winter wheat and oats in the San Joaquin Valley. Mild temperatures aided winter wheat development in the Sacramento Valley and vegetable crops were developing well in the San Joaquin valley.


Snow Depth (Inches)
Dec 21, 1998
Experimental product based on preliminary data
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY
The NWS co-operative network is the principal source of the snow depth reports.

International Weather and Crop Summary

December 13 - 19, 1998

HIGHLIGHTS

FSU-WESTERN: A warming trend ended a prolonged period of unseasonable cold, improving overwintering conditions for winter grains.

EUROPE: Rain and mild weather diminished snow cover in the north, while prolonged dryness in Spain continued to hamper winter grain emergence and establishment.

NORTHWESTERN AFRICA: Topsoils in Morocco remained unfavorably dry for winter grain emergence and establishment.

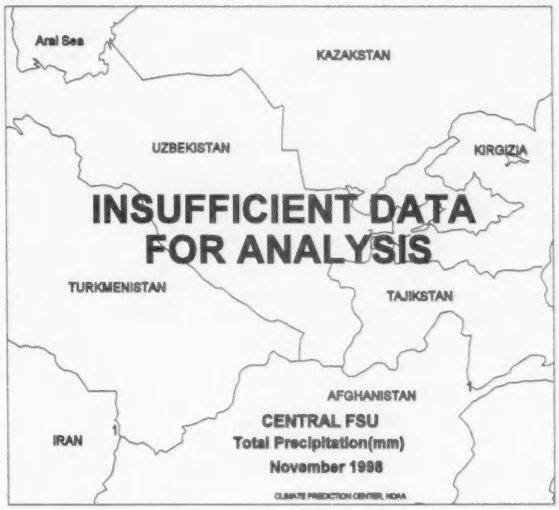
AUSTRALIA: Late-week rain disrupted winter grain harvests in the west and southeast.

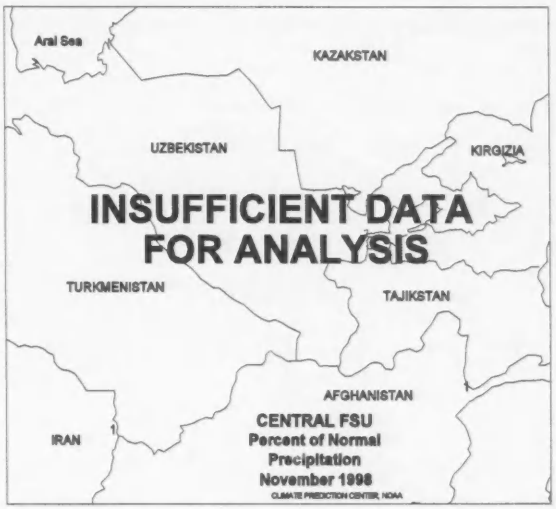
SOUTH AFRICA: Locally excessive rain developed over important agricultural areas of Western Cape before spreading eastward to the main summer crop areas.

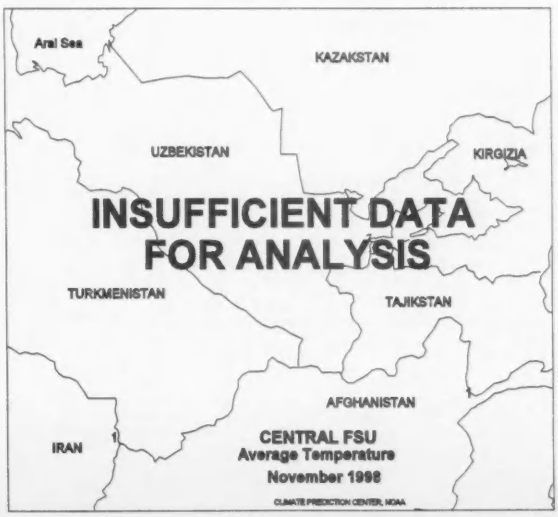
SOUTHEAST ASIA: Wetness continued to plague main-season rice harvesting in the Philippines.

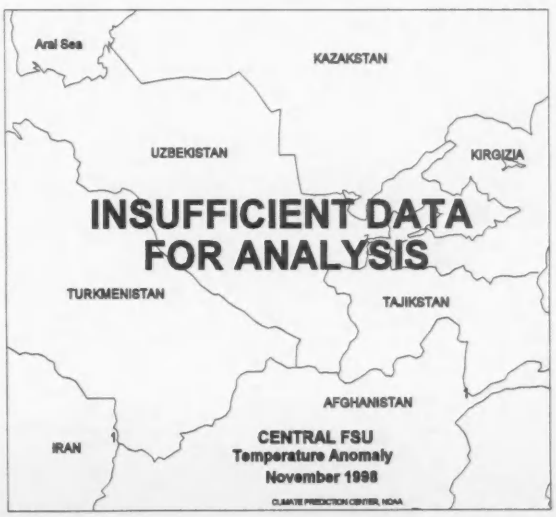
EASTERN ASIA: Mild weather caused winter wheat to lose some winter hardiness in the North China Plain.

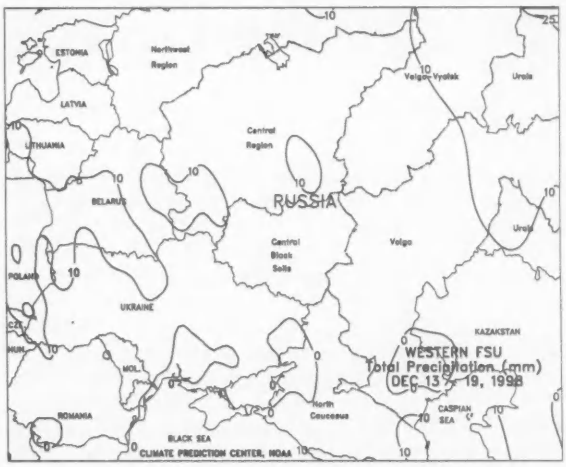
SOUTH AMERICA: Timely widespread showers eased dryness and favored summer crops in extreme southern Brazil and central Argentina.





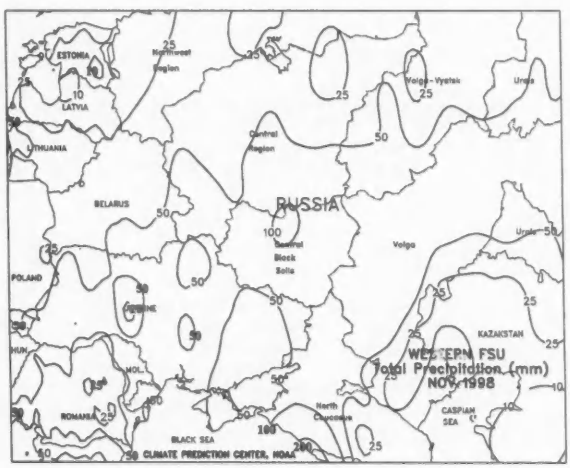


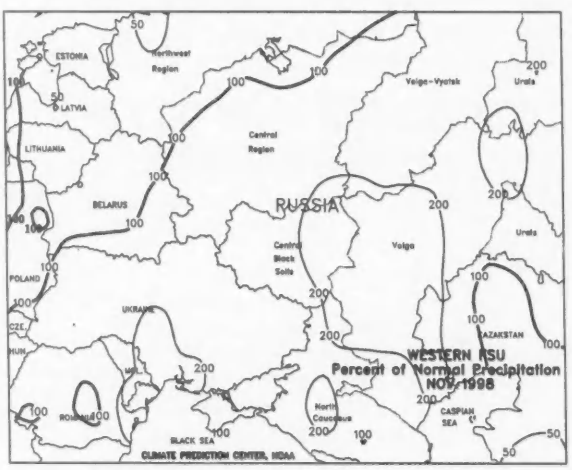


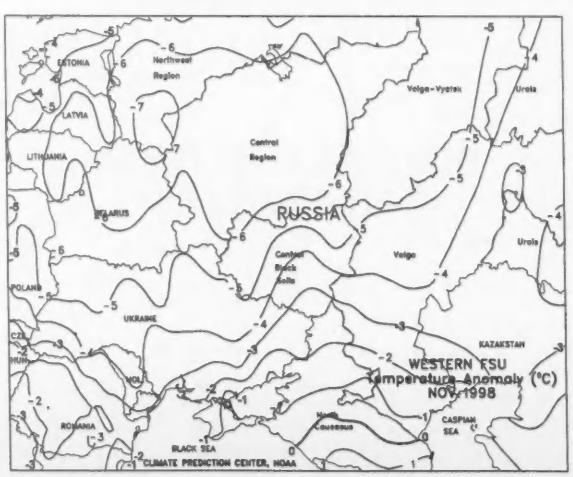


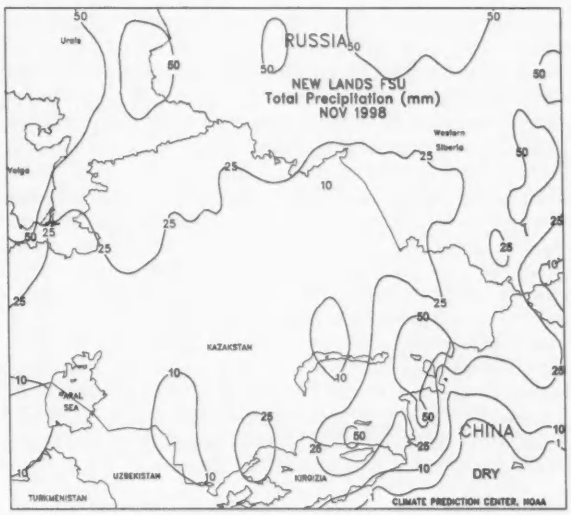
FSU-WESTERN

A warming trend spread eastward across the region, improving overwintering conditions for winter grains but melting some protective snow cover. During the last half of the week, maximum temperatures from 1 to 4 degrees C were observed at most locations. By week's end, most winter wheat areas in the southern Ukraine and the North Caucasus region in Russia lacked a protective snow cover. However, a moderate to deep snow cover persisted over remaining areas. Weekly temperatures averaged 2 to 4 degrees C above normal in the Baltics, Belarus, Ukraine, and southern Russia. Most of Russia, Ukraine, and the Baltics received light precipitation (generally less than 10 mm), with greatest amounts of moisture (10-21 mm) falling in western Belarus. In November, unseasonably cold, snowy weather spread rapidly southward over winter grain areas in Russia, Ukraine, Belarus, and the Baltics early in the month, ending a period of unseasonable warmth. The wintry weather halted further growth of poorly established winter grains in eastern Ukraine and southern Russia and induced crops into dormancy. As a result of fall drought and the sharp drop in temperatures in early November, winter wheat in primary growing areas of eastern Ukraine and southern Russia (southern Black Soils region, lower Volga Valley, and the North Caucasus region) entered dormancy poorly established, making the crop more susceptible to potential winterkill conditions. In the Baltics, Belarus, and northern Russia (Central Region, Volga Vyatsk, northern Black Soils region, and the upper Volga Valley) the cold weather was accompanied by moderate to heavy snow. The snow protected winter grains from periods of bitterly cold weather. However, the snow fell on mostly unfrozen soils, increasing the risk of fungal development if the snow were to persist for a sufficient amount of time.

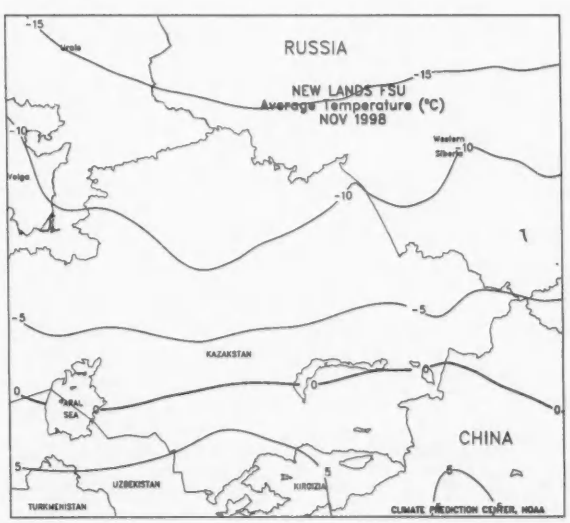


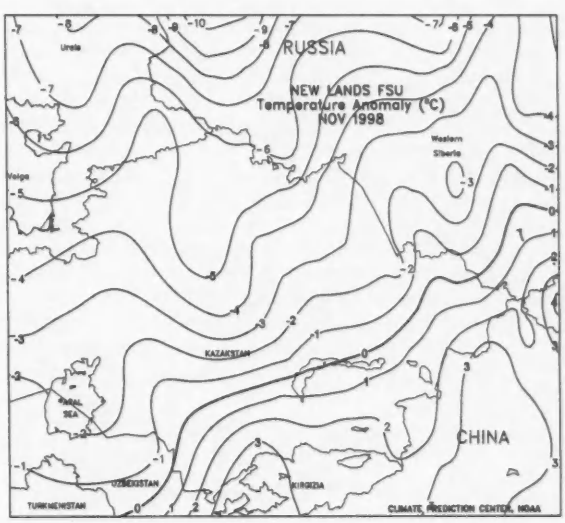





RUSSIA
NEW LANDS FSU
Total Precipitation (mm)
NOV 1998
Urals
Volga
Western Siberia
KAZAKSTAN
ARAL SEA
UZBEKISTAN
KIRGIZIA
TURKMENISTAN
CHINA
DRY
CLIMATE PREDICTION CENTER, NOAA

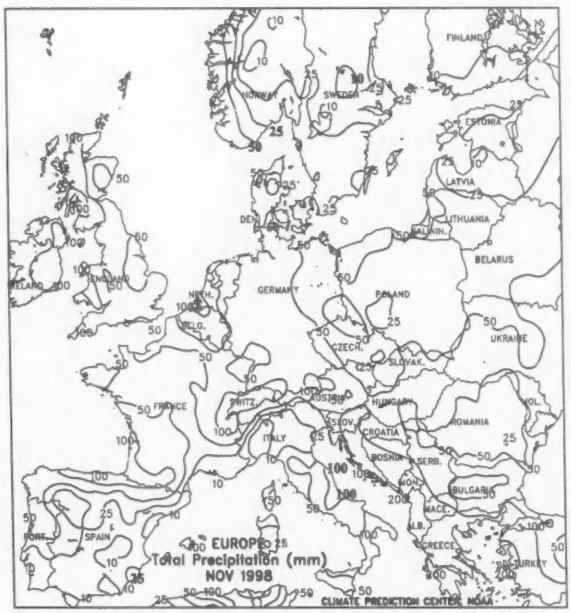
RUSSIA
NEW LANDS FSU
Percent of Normal Precipitation
NOV 1998
Urals
Volga
Western Siberia
KAZAKSTAN
ARAL SEA
UZBEKISTAN
KIRGIZIA
TURKMENISTAN
CHINA
CLIMATE PREDICTION CENTER, NOAA

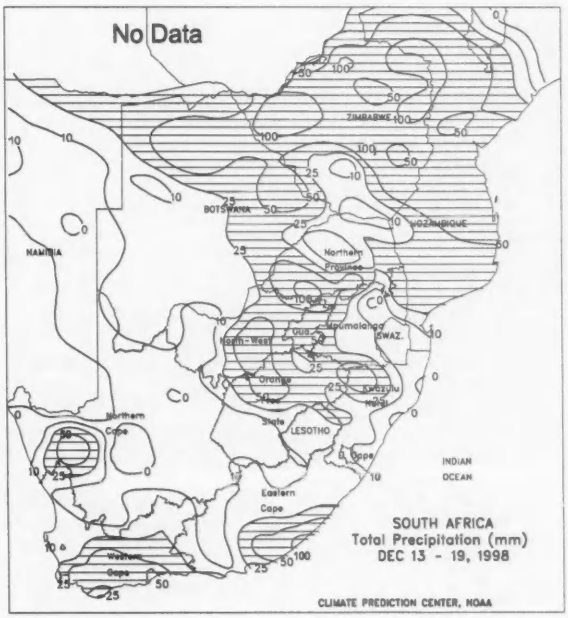

RUSSIA
NEW LANDS FSU
Average Temperature (°C)
NOV 1998
Urals
Volga
Western Siberia
KAZAKSTAN
ARAL SEA
UZBEKISTAN
KIRGIZIA
TURKMENISTAN
CHINA
CLIMATE PREDICTION CENTER, NOAA


RUSSIA
NEW LANDS FSU
Temperature Anomaly (°C)
NOV 1998
Urals
Volga
Western Siberia
KAZAKSTAN
ARAL SEA
UZBEKISTAN
KIRGIZIA
TURKMENISTAN
CHINA
CLIMATE PREDICTION CENTER, NOAA

EUROPE

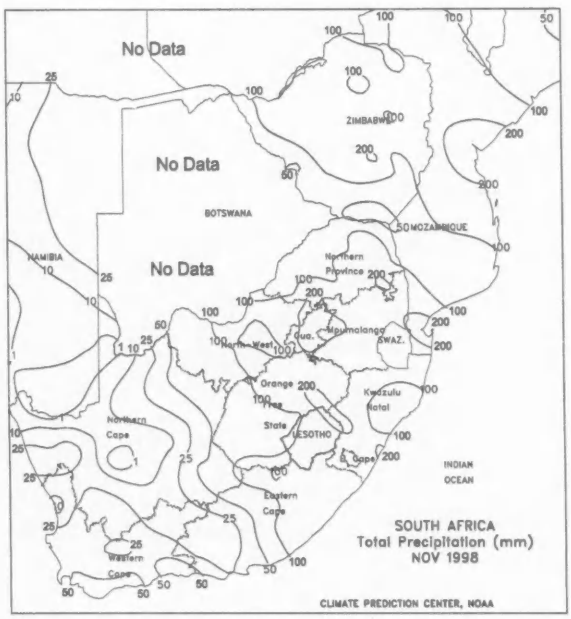
A warming trend developed across Europe during the week and was accompanied by widespread rain (10-40 mm) that spread from England eastward across northern Germany into Poland. Little or no precipitation fell over the southern half of Europe. Weekly temperatures averaged 2 to 4 degrees C above normal in most areas, except in the southeast and Italy, where temperatures averaged slightly below normal. The mild weather in Germany, Poland, the Czech Republic, and Slovakia improved overwintering conditions for dormant winter grains, but melted most of the snow cover. In Spain, prolonged dryness continued in central and southern areas, hampering the emergence and establishment of unirrigated winter grains. Rain is needed soon to improve emergence prospects and to prevent further deterioration in crop conditions. In November, above-normal precipitation fell over the Netherlands and Belgium, delaying sugar beet harvesting. Below-normal precipitation helped late season fieldwork from France and Spain eastward into northern Italy. However, little, if any, precipitation fell in central and southern Spain, creating a lack of topsoil moisture for winter grain planting. During the middle of November, unseasonably cold weather spread westward across Europe and persisted until month's end. The cold weather caused winter grains in western Europe to enter dormancy earlier than usual and maintained dormancy in winter grains in northern and eastern areas. An adequate snow cover in central and eastern Europe protected winter crops from very cold weather.

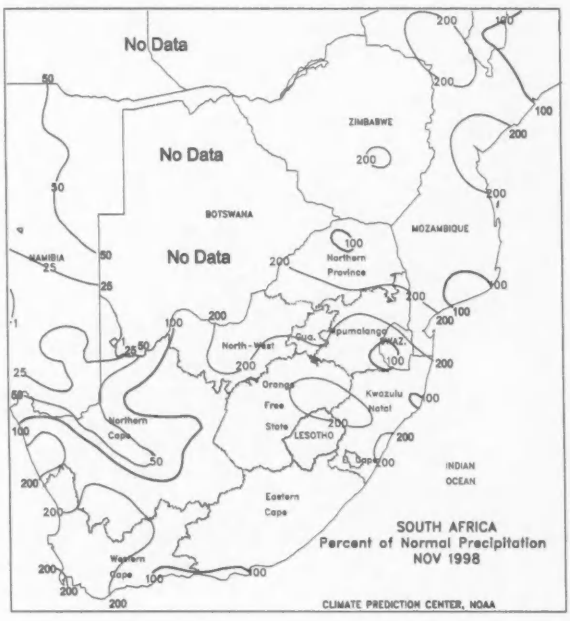




SOUTH AFRICA

Unseasonably heavy rain (25-50 mm or more) overspread important agricultural areas in Western and Eastern Cape Provinces. Although ending a brief heat wave, the unusual event may have lodged some unharvested wheat and subjected viticulture to excessive soil moisture levels. Shower activity pushed eastward late in the week, fostering the return of heavy rain (25-50 mm or more) to northern and central sections of the corn belt. Prior to the rainfall, warmer, drier conditions aided development of corn, sugarcane, and other summer crops following weeks of persistent wetness. In fact, temperatures reached the low to middle 30's C in many major summer crop areas. In November, frequent, near- to above-normal rainfall maintained adequate to abundant moisture reserves for the establishment of corn and other summer crops. November temperatures were generally favorable for early crop growth, with just a few occurrences of summer heat in the western corn belt. In Western Cape, a few outbreaks of unseasonable rainfall during the month hampered wheat harvests.


No Data
No Data
No Data
ZIMBABWE
BOTSWANA
MOZAMBIQUE
NAMIBIA
Northern Province
North-West
Gau.
Mpumalanga
SWAZ.
Orange Free State
Kwazulu Natal
LESOTHO
Northern Cape
Eastern Cape
Western Cape
INDIAN OCEAN
SOUTH AFRICA
Total Precipitation (mm)
NOV 1998
CLIMATE PREDICTION CENTER, NOAA


No Data
No Data
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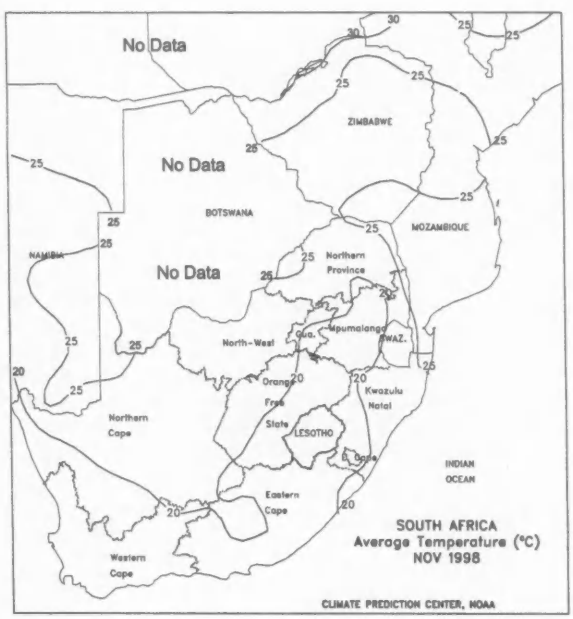
ZIMBABWE
BOTSWANA
MOZAMBIQUE
NAMIBIA
Northern Province
North-West
Gau.
Mpumalanga
SWAZ.
Orange Free State
Kwazulu Natal
LESOTHO
Northern Cape
Eastern Cape
Western Cape
INDIAN OCEAN
SOUTH AFRICA
Percent of Normal Precipitation
NOV 1998
CLIMATE PREDICTION CENTER, NOAA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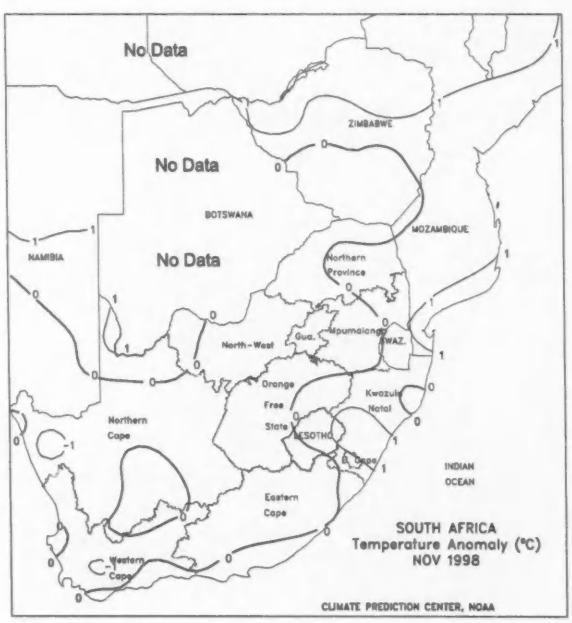
SWAZ.
Orange Free State
Kwazulu Natal
LESOTHO
Northern Cape
Eastern Cape
Western Cape
INDIAN OCEAN
SOUTH AFRICA
Average Temperature (°C)
NOV 1998
CLIMATE PREDICTION CENTER, NOAA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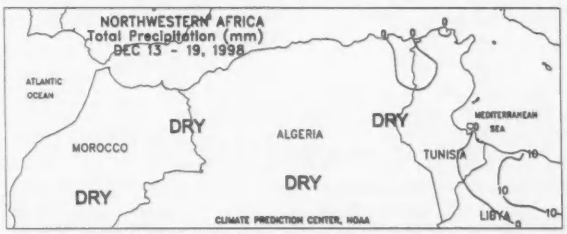
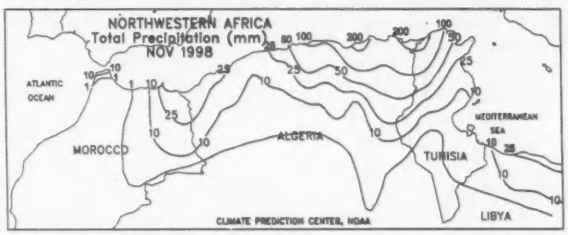
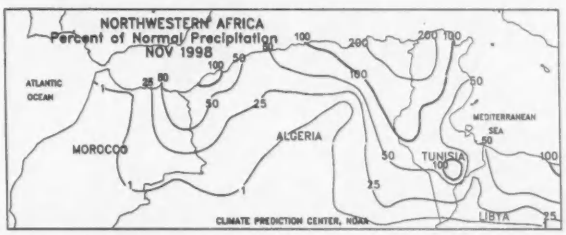
Kwazulu Natal
LESOTHO
Northern Cape
Eastern Cape
Western Cape
INDIAN OCEAN
SOUTH AFRICA
Temperature Anomaly (°C)
NOV 1998
CLIMATE PREDICTION CENTER, NOAA

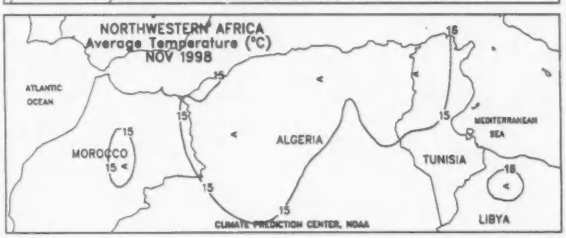


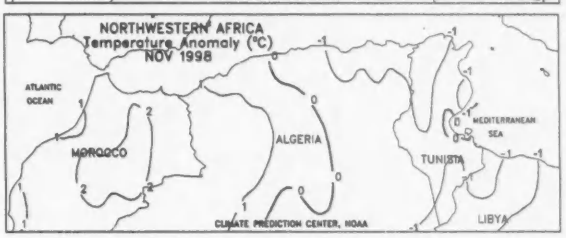
NORTHWESTERN AFRICA

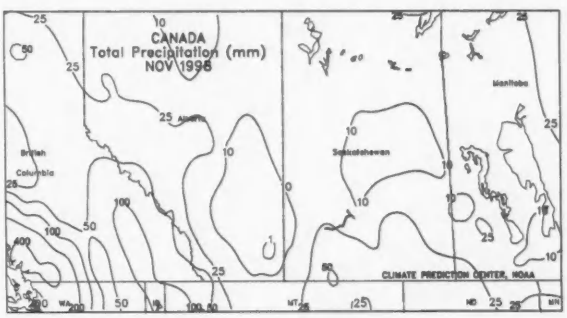
Dry weather prevailed over winter grain areas in Morocco, where a lack of moisture continued to hamper emergence and early establishment. There has been only 1 week with significant precipitation in Morocco since the planting season began in early November. The chronic dryness in Morocco has depleted moisture supplies and created unfavorable conditions for winter grain emergence and plant establishment. Timely rains will be needed during the remainder of the growing season to prevent serious declines in yield prospects. Farther east, although mostly dry weather prevailed over winter grain areas in Algeria and Tunisia, moisture reserves were adequate for newly emerged crops. Weekly temperatures averaged 1 to 3 degrees C above normal in Morocco, Algeria, and Tunisia. In November, dry weather slowed winter grain planting in Morocco as growers waited for rain. Farther east, above-normal precipitation fell in eastern Algeria and northern Tunisia, providing abundant moisture for winter grain planting and emergence.

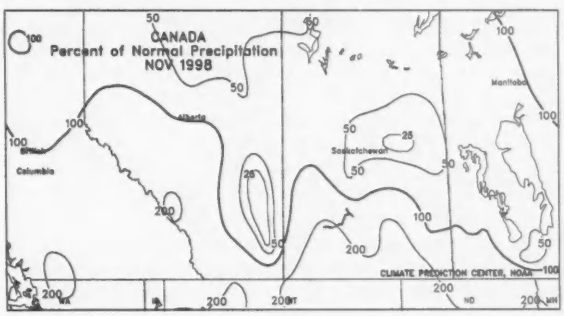


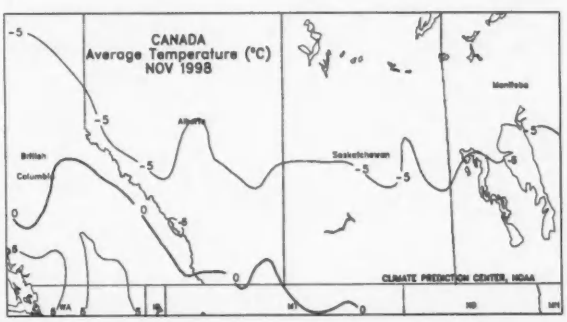


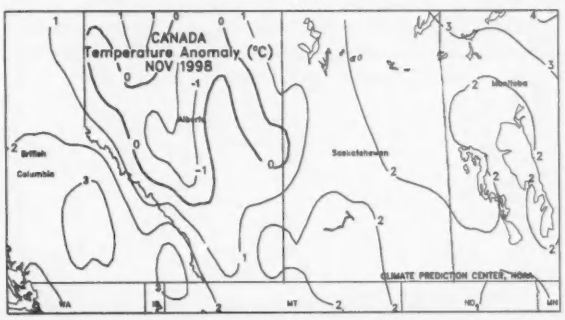


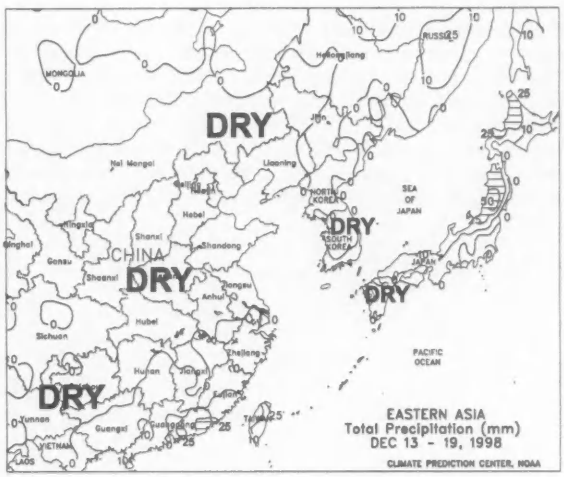






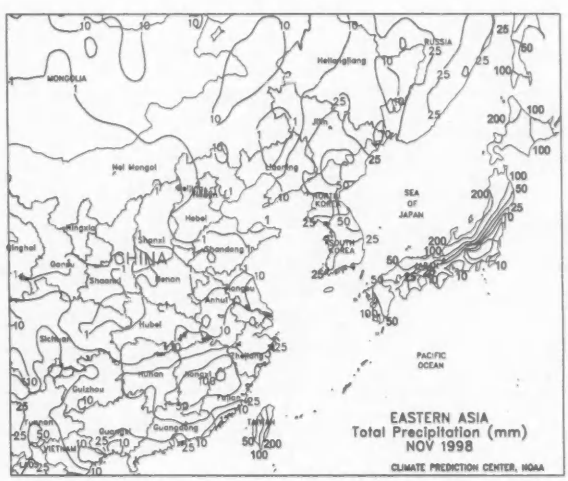


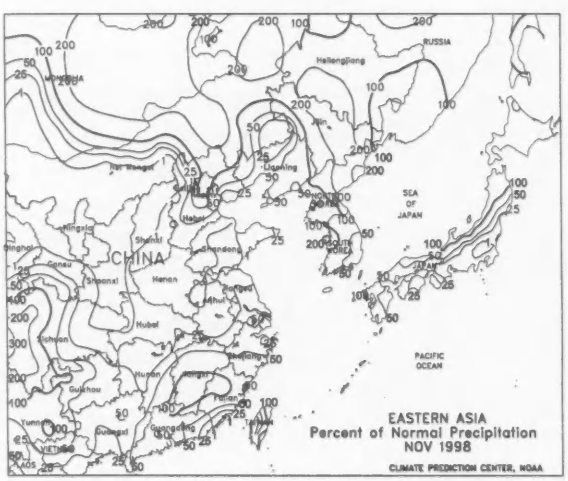


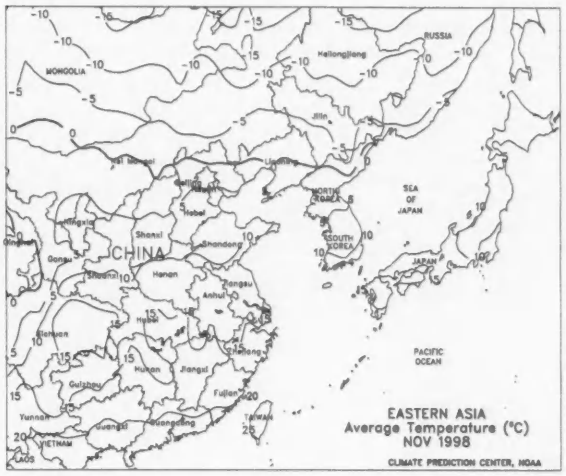


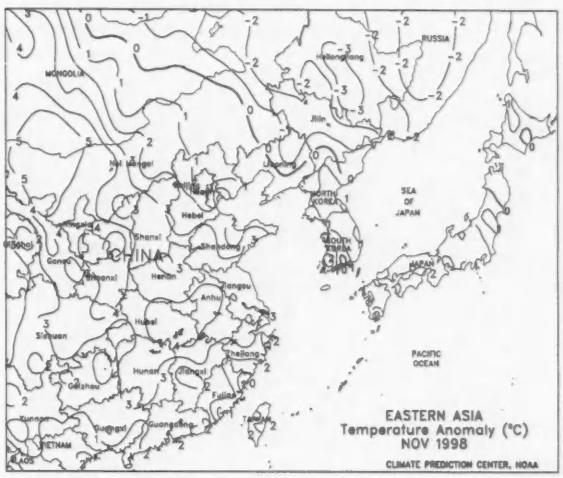
EASTERN ASIA

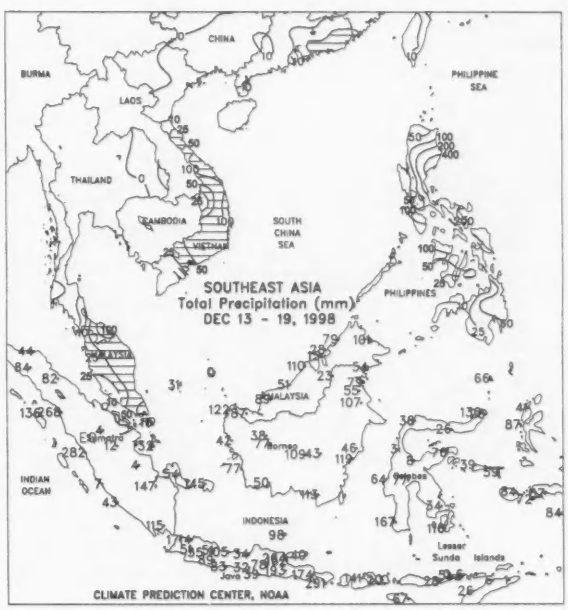
Warmer weather (temperatures 5-8 degrees C above normal) caused dormant winter wheat to lose some winter hardiness in the North China Plain. Dry weather prevailed across the Yangtze Valley, allowing winter grain and oilseed planting to near completion. During November, continued below-normal rainfall limited soil moisture for rainfed winter wheat in North China Plain. Adequate irrigation supplies exist for irrigated winter wheat. Below-normal November rainfall favored rice harvesting in south-central China, the Korean peninsula, and most of Japan.





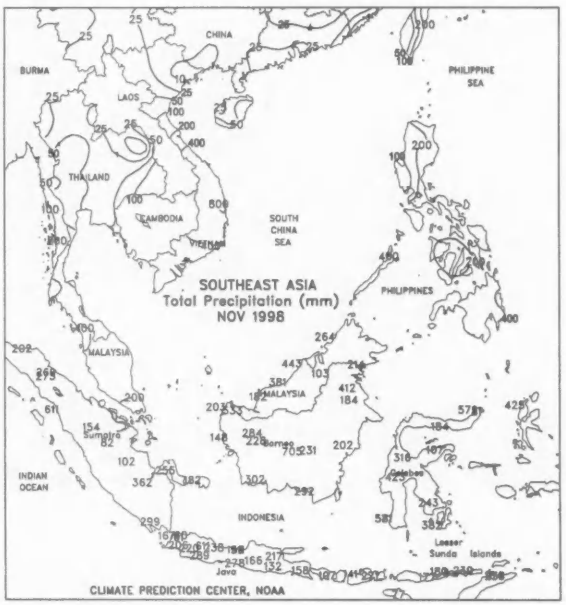


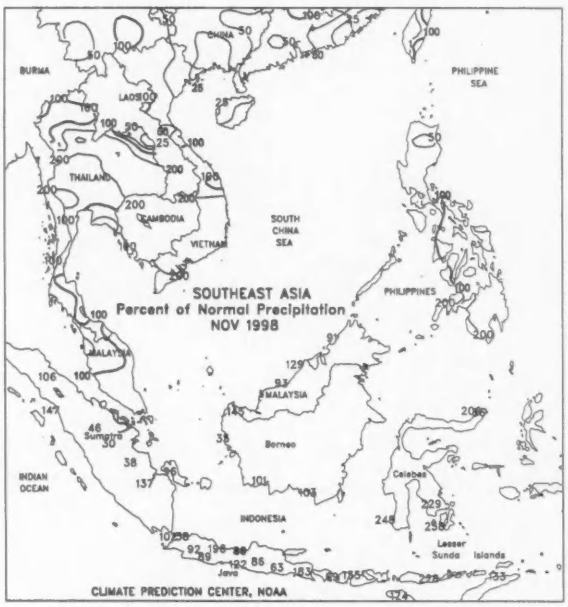


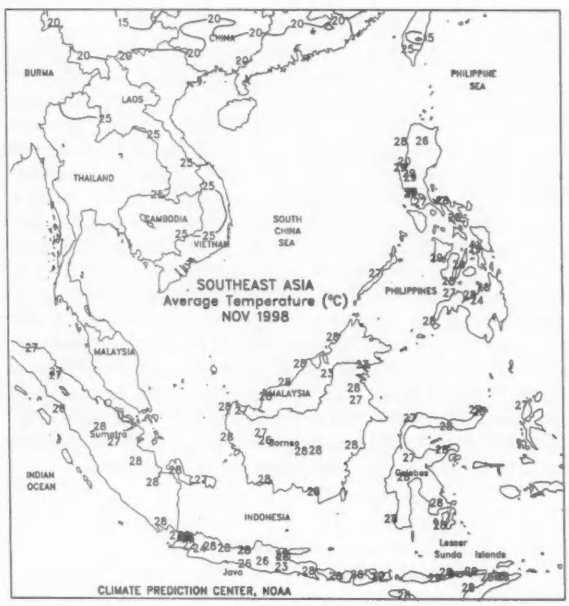


SOUTHEAST ASIA

Unseasonable showers (60-200 mm, with isolated amounts greater than 300 mm) covered the north-central Philippines (southern Luzon and central Islands), causing flooding and possible damage to mature rice while slowing rice harvesting. In Indochina, the landfall of Typhoon Faith early in the week produced heavy showers (70-180 mm) in central Vietnam. In contrast, seasonably dry weather favored main-season rice harvesting in Thailand. Farther south, showers (10-60 mm) increased moisture supplies for oil palm across peninsular Malaysia. In Java, widespread showers (20-100 mm) boosted moisture for main-season rice planting. During November, three tropical cyclones (Chip, Dawn, and Elvis) brought above-normal rainfall to southern Vietnam, slowing rice harvesting and causing possible quality reduction in coffee. Above-normal rainfall also slowed rice harvesting in northeastern Thailand. Near-normal November rainfall maintained adequate moisture for main-season grains in Java, second-season grains in the Philippines, and oil palm across peninsular Malaysia.


SOUTHEAST ASIA
Total Precipitation (mm)
NOV 1998
CLIMATE PREDICTION CENTER, NOAA
CHINA
BURMA
LAOS
THAILAND
CAMBODIA
VIETNAM
SOUTH CHINA SEA
PHILIPPINE SEA
PHILIPPINES
MALAYSIA
INDONESIA
INDIAN OCEAN
Sumatra
Borneo
Celebes
Java
Lesser Sunda Islands


SOUTHEAST ASIA
Percent of Normal Precipitation
NOV 1998
CLIMATE PREDICTION CENTER, NOAA
CHINA
BURMA
LAOS
THAILAND
CAMBODIA
VIETNAM
SOUTH CHINA SEA
PHILIPPINE SEA
PHILIPPINES
MALAYSIA
INDONESIA
INDIAN OCEAN
Sumatra
Borneo
Celebes
Java
Lesser Sunda Islands


SOUTHEAST ASIA
Average Temperature (°C)
NOV 1998
CLIMATE PREDICTION CENTER, NOAA
CHINA
BURMA
LAOS
THAILAND
CAMBODIA
VIETNAM
SOUTH CHINA SEA
PHILIPPINE SEA
PHILIPPINES
MALAYSIA
INDONESIA
INDIAN OCEAN
Sumatra
Borneo
Celebes
Java
Lesser Sunda Islands

SOUTHEAST ASIA
Temperature Anomaly (°C)
NOV 1998
CLIMATE PREDICTION CENTER, NOAA
CHINA
BURMA
LAOS
THAILAND
CAMBODIA
VIETNAM
SOUTH CHINA SEA
PHILIPPINE SEA
PHILIPPINES
MALAYSIA
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INDIAN OCEAN
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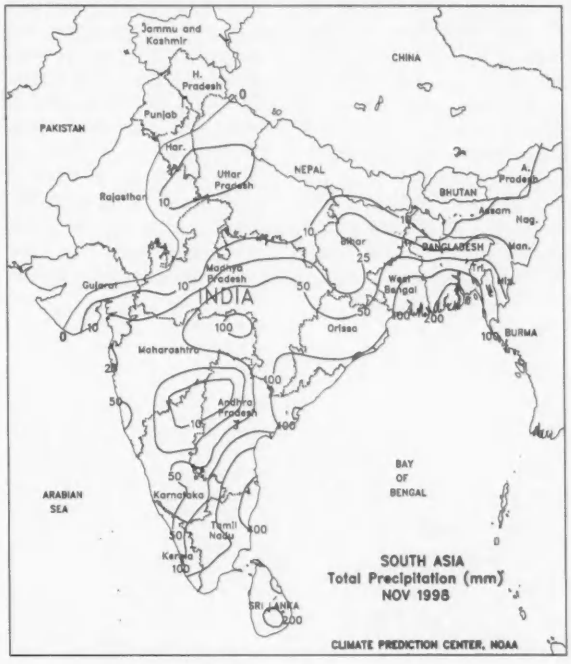
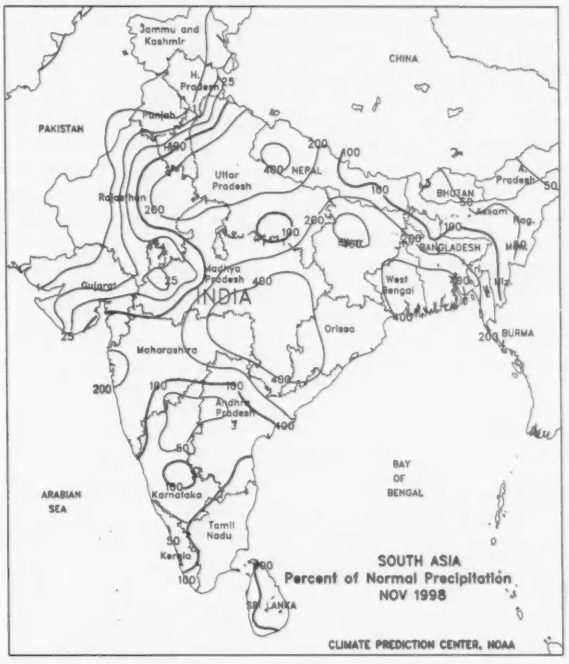
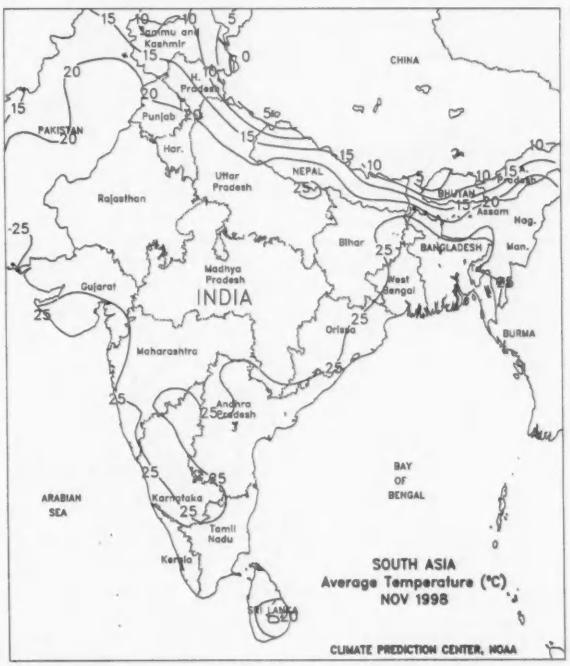
Borneo
Celebes
Java
Lesser Sunda Islands

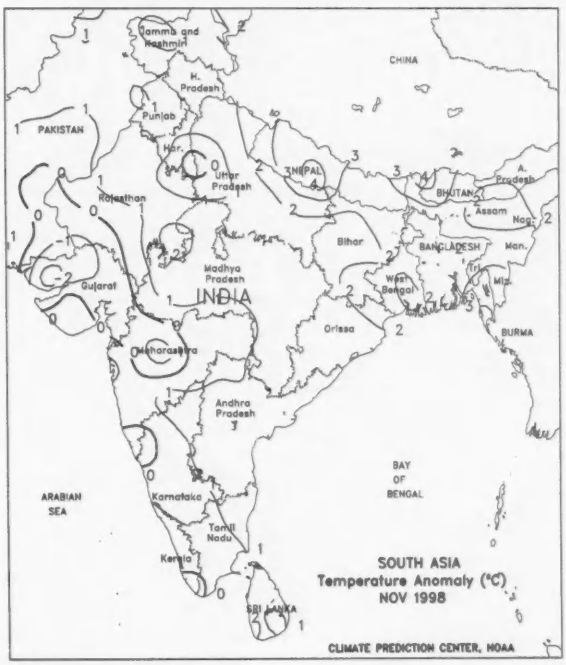
SOUTH ASIA

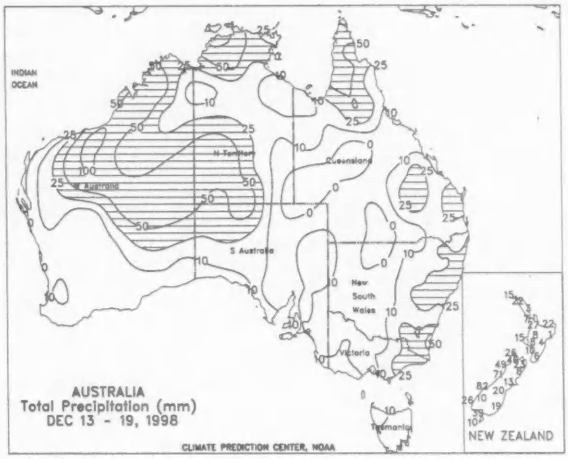
In November, unfavorably heavy rainfall was recorded in coastal rice areas of southern and eastern India. Two cyclones struck the southeast coast at mid-month, generating locally heavy rain and high winds that likely caused some damage to rice. Rain in southern India during November may have affected quality of unharvested cotton but maintained generally favorable moisture reserves for autumn-planted crops. Seasonably drier weather across the north benefited mature summer grains, oilseeds, and cotton and promoted planting of winter grains and oilseeds.





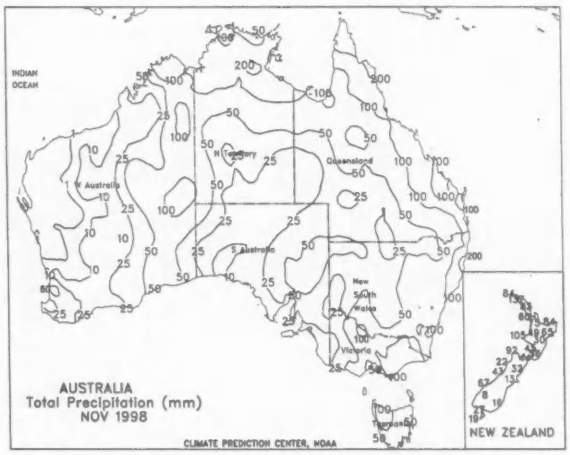


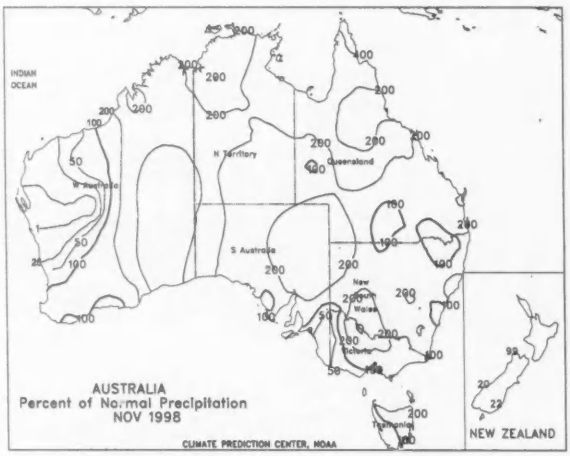


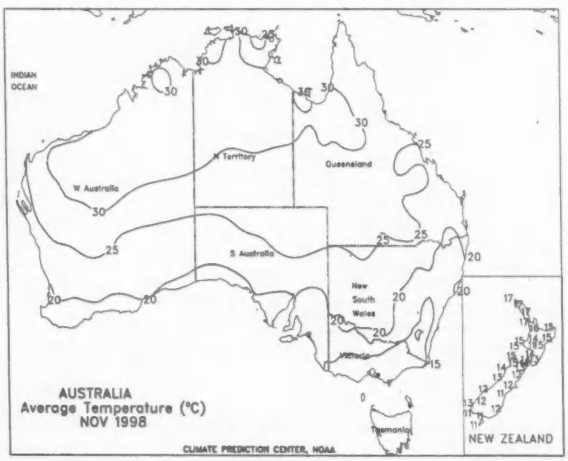


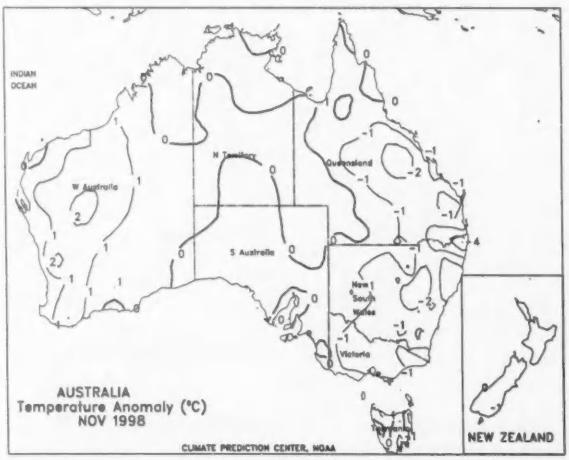
AUSTRALIA

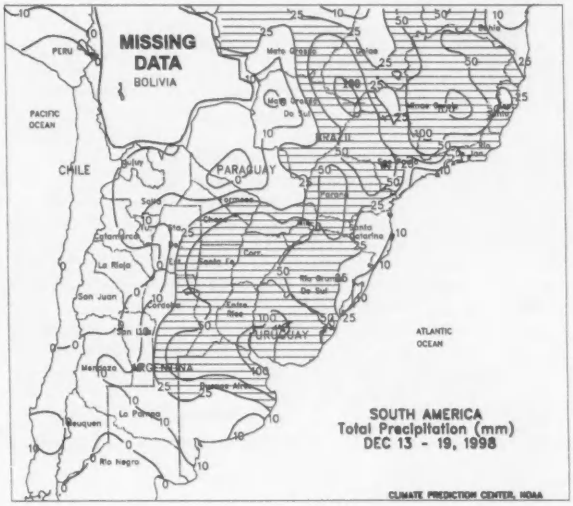
Scattered, mostly light showers (10 mm or less) in western and southeastern winter grain areas caused minor harvest delays. In northern New South Wales and Queensland, light to moderate rain (10-35 mm) maintained abundant moisture reserves for cotton and sorghum. Light to moderate rain also reached coastal sugarcane areas by week's end. During November, rainfall was near to above normal in most major agricultural districts. The cool, showery weather in Queensland and northern New South Wales kept unharvested winter grains unfavorably wet and slowed early development of cotton, sorghum, and sugarcane. Reports of wheat quality degradation and reduced sugar content of sugarcane were common. In the southeast, early-month rainfall improved moisture reserves but came too late to significantly improve yield prospects. Conditions remained generally favorable in Western Australia for filling to maturing wheat and barley.





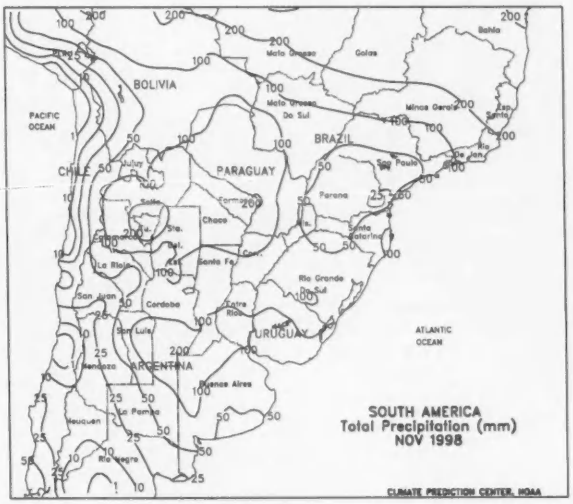


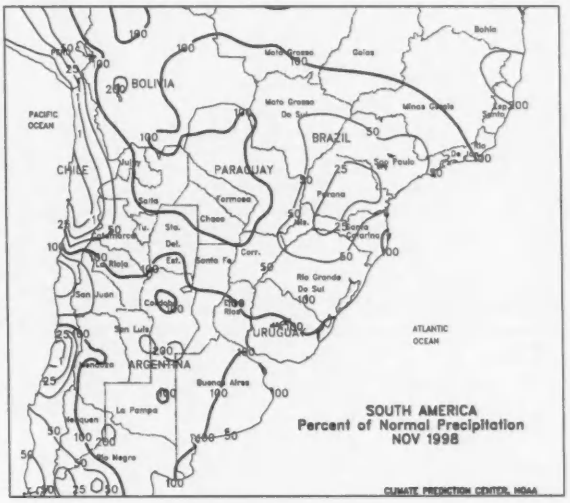


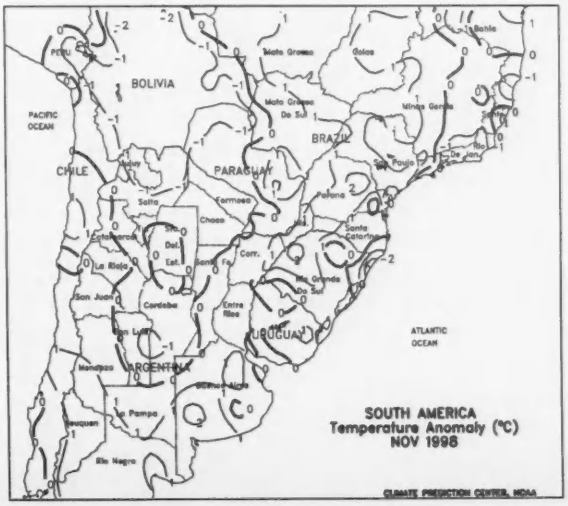


SOUTH AMERICA

Widespread rain (25-60 mm, with isolated amounts greater than 80 mm) covered the main summer crop areas of central Argentina. The rain boosted soil moisture for vegetative corn and germinating soybeans, but slowed winter wheat harvesting. Rain (10-24 mm) also boosted soil moisture in southern Buenos Aires, but came too late to improve winter wheat crop prospects. Moderate showers (50-77 mm) favored germinating cotton in northern Argentina. According to reports as of December 11, corn was 88 percent planted versus 88 percent last year, sunseed was 97 percent planted versus 94 percent last year, and soybeans were 77 percent planted versus 74 percent a year ago. Wheat harvesting was 42 percent completed. In southern Brazil, widespread showers (25-75 mm) continued to ease dryness in Rio Grande do Sul and Parana, benefiting germinating soybeans and corn in the vegetative stage. Farther north, widespread showers (10-75 mm) maintained favorable soil moisture for summer crop development. In southern Paraguay, significant rain (17-80 mm) boosted topsoil moisture. In November, below-normal rainfall stressed germinating soybeans and vegetative corn in extreme southern Brazil and central Argentina. Near-normal rainfall maintained adequate soil moisture elsewhere in southern Brazil. Below-normal rainfall stressed reproductive winter wheat in southern Buenos Aires.







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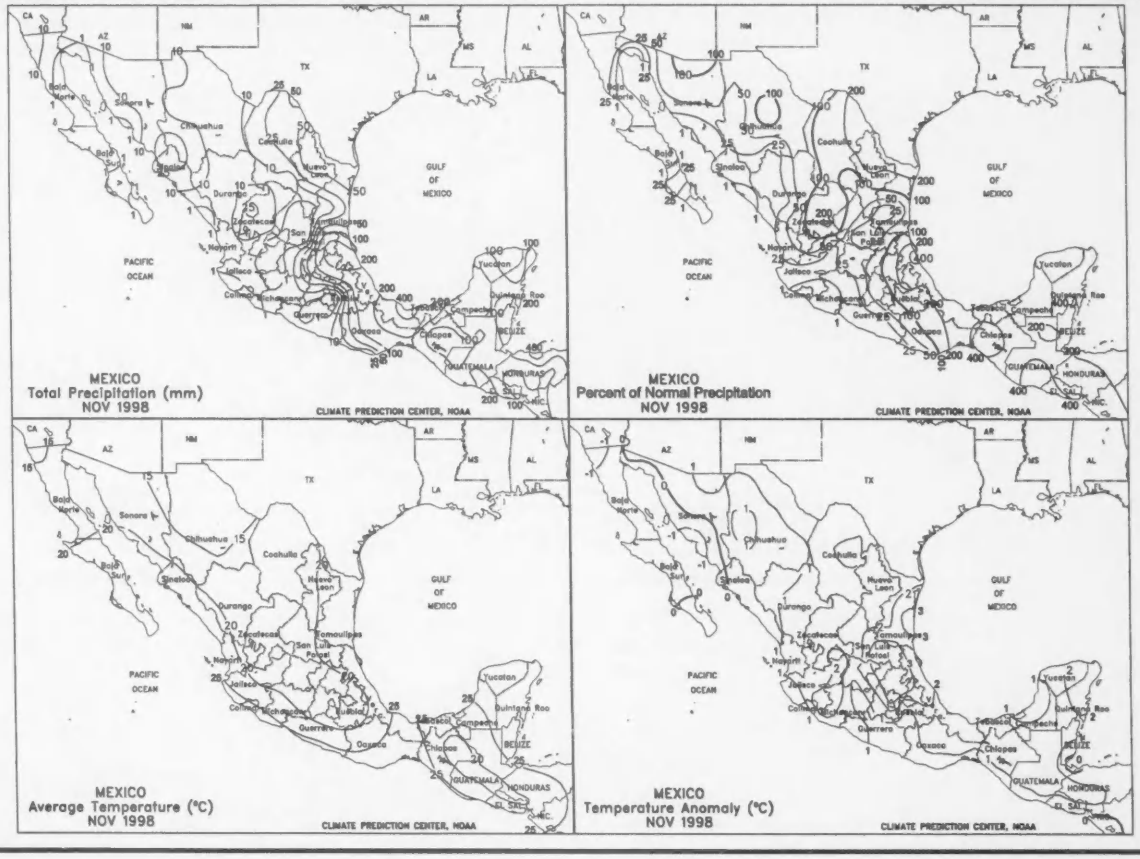

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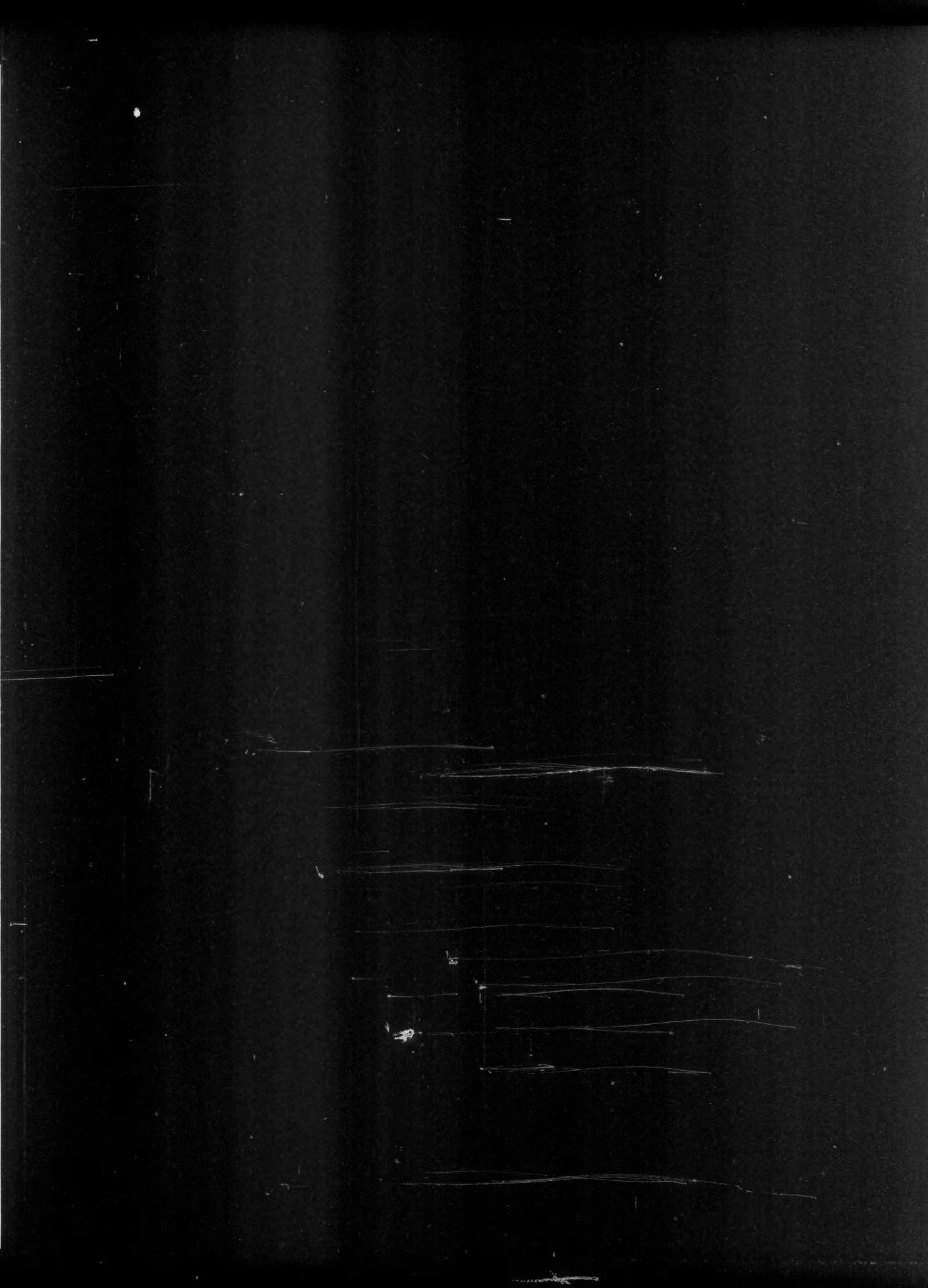

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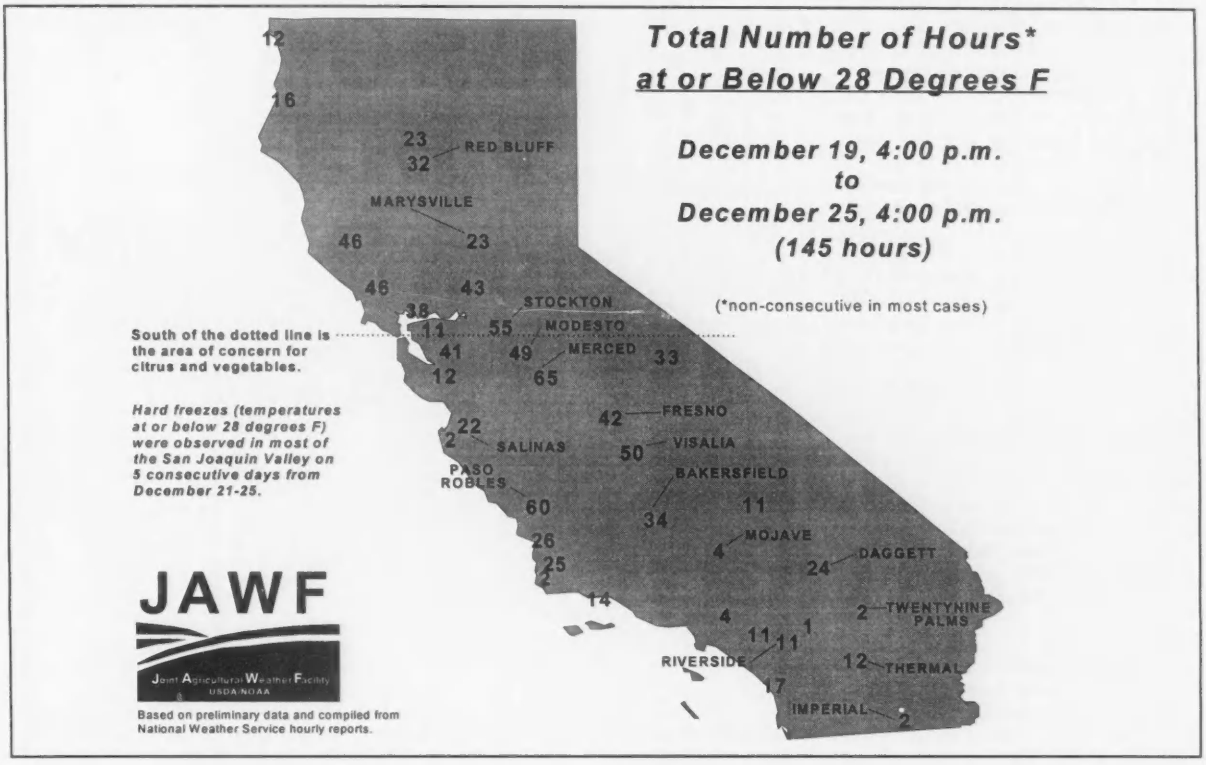

HIGHLIGHTS

December 20 - 26, 1998

Freezes struck **California's San Joaquin Valley** from December 21-25, the most sustained period of cold weather there since December 1990, damaging citrus and vegetables. Less significant freeze effects were observed in citrus and winter vegetable areas of **southern California**. Meanwhile, bitterly cold weather overspread winter wheat areas of the **Ohio Valley**, **Plains**, and **Northwest**. Much of the **Northwest's** soft white winter wheat was exposed to near- to slightly below-zero (degrees F) temperatures on five consecutive mornings (December 20-24), raising concerns about potential damage, especially to the portion of the crop that entered dormancy poorly established. Although cold weather burned back unprotected winter wheat in the **Ohio Valley** and portions of the **Plains**, snow cover insulated wheat from the most severe cold (-10 to -30°F) in areas from **Montana** southward to the **central High Plains**. Weekly temperatures ranged from 5 to 23°F below normal across the **western two-thirds of the Nation**. Near-normal readings prevailed in the **East**, except in **Florida**, where departures

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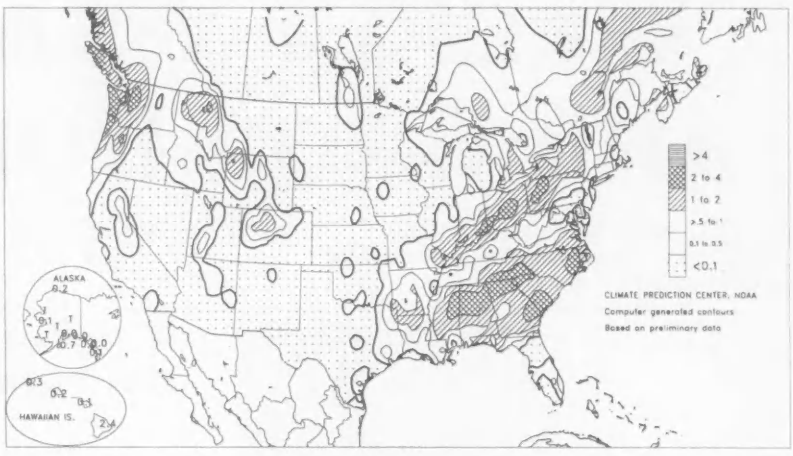
reached +10°F. During the mid- to late-week period, freezing rain and sleet overspread areas from **central Texas** to the **Mid-Atlantic region**, causing power outages and disrupting transportation, while stormy but milder weather arrived in the **Northwest**. The week's only other significant precipitation occurred in the **Ohio Valley**, where locally heavy rain preceded the early-week arrival of Arctic air.

The Arctic outbreak resulted in less than 50 daily-record lows, in part due to similarly timed cold snaps in 1990, 1983, 1968, and earlier. Nevertheless, the **San Joaquin Valley** endured damaging cold, including an all-time record-tying low of 19°F in **Bakersfield** on December 23. Temperatures in **Bakersfield** had previously dipped to 19°F on seven occasions, all during the freezes of December 1929-January 1930, January 1937, and December 1990. In addition, **Bakersfield's** high of 34°F on Tuesday was their lowest on record, eclipsing a mark that had been established on December 11, 1932. Rare snowfall preceded the arrival of the coldest air across the valley, the most significant such event there since December 20, 1968. Farther north, **Eureka, CA** reported four daily-record lows from December 20-24, including a minimum (23°F on Monday) that was within 2°F of their monthly record set in 1972. In **Nevada**, **Reno** (-3°F on Wednesday) noted their lowest December temperature since 1990. Similarly, **Boise, ID** (-2°F on Monday) endured their lowest reading since November 24, 1993.

Meanwhile, snowfall gradually ended across the **Intermountain West**, but not before 6.3 inches blanketed **Grand Junction, CO** on Sunday. The last day more snow fell in **Grand Junction** was February 4, 1989. Two days later, **Grand Junction's** minimum of -12°F was their lowest reading since December 24, 1990. In **western Montana**, lows on Monday plummeted to -39°F in **Butte**, -43°F in **Wisdom**, and -45°F in **West Yellowstone**. Farther east, **Wichita, KS** (0°F on Tuesday) logged their lowest reading since January 28, 1997. Elsewhere in **Kansas**, temperatures remained below freezing for 152 consecutive hours (December 19-25) in **Topeka**, far short of their record of 553 hours in 1983-84. On Monday, **Minneapolis, MN** registered their first sub-zero temperature in 334 days, just short of their all-time record (337 days) set in 1954-55. The cold outbreak delivered the latest first freeze on record to locations such as **Little Rock, AR** (26°F on December 21, breaking their 1994 record by 10 days) and **New York's**

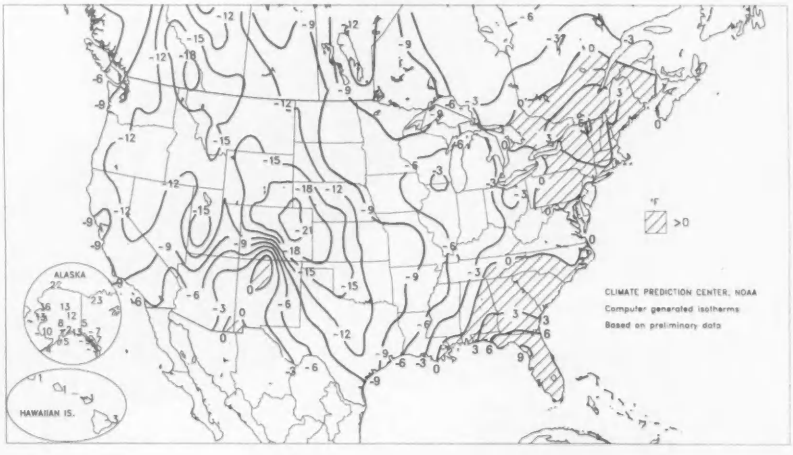
Total Precipitation (Inches)

DEC 20 - 26, 1998



Departure of Average Temperature from Normal (°F)

DEC 20 - 26, 1998



Central Park (22°F on December 22, bettering their 1948 standard by 11 days). In **Texas**, **Dallas-Ft. Worth's** first freeze (22°F on December 21) was their fourth-latest on record, and latest since December 25, 1965. Although **Deep South Texas** was spared from a freeze, temperatures on December 26 dipped to 20°F in **Hondo** and 25°F in **Del Rio**.

Preceding the Arctic blast, more than two dozen locations in the **Southeast** notched daily-record highs. On Monday, both **Savannah, GA** and **Mobile, AL** reported 79°F. A day later, **Wilmington, NC** logged 80°F, while **Huntington, WV** recorded 68°F. Warmth continued through week's end in **Peninsular Florida**, where **Miami Beach** collected a trio of daily-record highs (83°F on December 24, 25, and 26). Farther north, however, freezing rain glazed areas from **central Texas** to **Virginia** and the **Carolinas**, including areas as far south as the northern portions of **Louisiana**, **Mississippi**, and **Alabama**. Greater than 1-inch ice accumulations were received in some areas from **northern Mississippi** and **Tennessee** to **southeastern Virginia**. Sleet was also reported across the **South**, with some snow along the **East Coast**. Earlier in the week, as much as 1 to 3 inches of rain pelted the **Ohio Valley** before briefly changing to snow. Toward week's end, snowfall in the interior **Northwest** boosted monthly totals to 10.6 inches in **Spokane, WA** and 8.8 inches in **Boise**, too late to protect soft white winter wheat from the bitter cold of December 20-24.

On Tuesday, the same day that **Bakersfield's** high reached only 34°F, **Barrow, AK**, at 71.3°N Latitude, notched a daily-record high of 32°F. **Barrow's** weekly temperatures averaged 22°F above normal, part of a mild pattern that dominated all of **Alaska** except southeastern areas. In contrast, cooler-than-normal weather prevailed in **Hawaii**, resulting in a daily record-tying low (60°F on Saturday) in **Hilo**.

National Weather Data for Selected Cities

Weather Data for the Week Ending December 26, 1998

Data Provided by Climate Prediction Center (301-763-8000 EXT. 7503)

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP, °F		PRECIP.	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
AL	BIRMINGHAM	51	37	68	29	44	1	3.01	1.82	1.41	5.47	128	65.96	123	97	68	0	5	6	2
	HUNTSVILLE	48	33	70	25	41	-1	2.28	0.95	1.39	5.82	118	44.46	79	100	78	0	5	4	2
	MOBILE	58	44	79	35	51	-1	0.39	-0.82	0.27	1.68	38	85.97	136	99	73	0	0	5	0
	MONTGOMERY	57	42	74	32	50	1	1.43	0.24	0.85	2.00	48	48.41	92	98	71	0	1	4	2
AK	ANCHORAGE	20	7	24	-1	13	-2	0.00	-0.25	0.00	0.79	86	11.13	71	94	75	0	7	0	0
	BARROW	18	2	32	-9	10	22	0.16	0.13	0.05	0.47	470	4.95	115	89	71	0	7	4	0
	FAIRBANKS	12	-4	26	-15	4	12	0.03	-0.16	0.02	0.47	66	10.60	98	88	69	0	7	2	0
	JUNEAU	25	14	32	8	20	-7	0.00	-1.01	0.00	3.95	107	62.79	117	94	71	0	7	0	0
	KODIAK	38	33	40	26	36	5	0.74	-0.86	0.30	4.64	82	106.35	160	96	74	0	1	5	0
	NOME	27	12	35	-2	20	13	0.11	-0.08	0.07	0.86	119	24.18	163	88	66	0	7	2	0
AZ	FLAGSTAFF	39	16	52	7	28	-1	0.07	-0.48	0.07	0.59	29	27.54	123	85	36	0	7	1	0
	PHOENIX	59	39	64	32	49	-4	0.00	-0.22	0.00	0.88	107	10.72	143	73	25	0	1	0	0
	TUCSON	61	32	69	26	47	-4	0.00	-0.25	0.00	0.58	65	13.74	116	83	21	0	4	0	0
	YUMA	61	42	69	36	52	-4	0.00	-0.11	0.00	0.17	45	4.64	150	41	19	0	0	0	0
AR	FORT SMITH	39	23	49	16	31	-8	0.46	-0.15	0.22	3.25	124	44.92	111	89	53	0	6	3	0
	LITTLE ROCK	42	25	72	20	33	-8	0.72	-0.31	0.57	3.80	92	41.42	83	88	51	0	6	3	1
CA	BAKERSFIELD	43	24	51	19	34	-13	0.10	-0.04	0.10	0.67	131	13.34	239	95	56	0	7	1	0
	EUREKA	47	31	53	23	39	-9	0.10	-1.23	0.05	5.23	103	63.62	174	88	60	0	5	3	0
	FRESNO	41	25	48	21	33	-11	0.09	-0.24	0.09	0.74	64	17.37	169	93	57	0	7	1	0
	LOS ANGELES	60	41	71	37	50	-6	0.03	-0.36	0.01	0.86	65	25.93	221	72	25	0	0	1	0
	REDDING	46	28	61	21	37	-7	0.00	-1.26	0.00	2.13	47	61.20	189	66	29	0	6	0	0
	SACRAMENTO	45	25	51	20	35	-9	0.00	-0.59	0.00	0.59	29	28.74	169	92	38	0	6	0	0
	SAN DIEGO	59	44	65	39	51	-5	0.00	-0.36	0.00	0.69	52	15.78	163	75	38	0	0	0	0
	SAN FRANCISCO	46	34	50	31	40	-8	0.17	-0.57	0.17	1.13	45	32.82	172	81	43	0	3	1	0
CO	ALAMOSA	34	2	43	-8	18	2	0.04	-0.06	0.01	0.04	10	6.88	92	80	31	0	7	1	0
	CO SPRINGS	21	-2	51	-10	10	-19	0.10	-0.01	0.05	0.27	66	16.34	101	79	44	0	7	2	0
	DENVER	20	-3	47	-19	8	-21	0.23	0.09	0.12	0.34	61	16.26	108	81	52	0	7	2	0
	GRAND JUNCTION	20	-1	36	-12	9	-17	0.27	0.13	0.25	0.29	57	9.13	107	89	59	0	7	2	0
	PUEBLO	22	-8	50	-17	7	-23	0.16	0.08	0.12	0.28	76	11.72	105	90	57	0	7	2	0
CT	BRIDGEPORT	40	26	56	17	33	1	0.19	-0.58	0.09	0.64	22	41.57	101	89	44	0	5	3	0
	HARTFORD	39	23	56	14	31	4	0.25	-0.61	0.24	0.54	16	45.06	103	80	42	0	5	2	0
DC	WASHINGTON	44	29	67	20	37	-1	0.18	-0.51	0.16	1.66	63	35.85	94	79	37	0	5	2	0
DE	WILMINGTON	42	26	64	14	34	0	0.30	-0.48	0.17	0.86	29	36.38	90	90	54	0	5	3	0
FL	DAYTONA BEACH	76	61	83	50	68	9	0.04	-0.54	0.03	0.95	44	40.12	85	98	68	0	0	2	0
	JACKSONVILLE	68	52	79	39	60	6	0.24	-0.41	0.22	0.33	15	56.76	112	99	75	0	0	3	0
	KEY WEST	80	72	81	71	76	6	0.01	-0.43	0.01	1.23	72	37.58	98	94	73	0	0	1	0
	MIAMI	81	70	82	68	76	7	0.03	-0.36	0.02	0.86	55	69.17	124	90	62	0	0	2	0
	ORLANDO	78	60	83	53	69	8	0.07	-0.40	0.01	0.67	37	44.77	94	99	63	0	0	2	0
	PENSACOLA	61	48	75	40	55	2	1.37	0.37	0.60	3.85	108	67.87	110	99	78	0	0	7	1
	TALLAHASSEE	67	49	78	43	58	6	1.25	0.09	0.54	1.60	38	58.83	91	98	74	0	0	4	1
	TAMPA	78	63	83	54	70	9	0.20	-0.30	0.13	0.59	33	54.84	126	100	72	0	0	2	0
	WEST PALM BEACH	80	67	82	62	74	7	0.74	0.24	0.35	2.23	105	85.83	109	94	65	0	0	4	0
GA	ATHENS	53	39	74	31	46	3	1.19	0.24	0.77	1.87	55	50.35	103	98	68	0	1	5	1
	ATLANTA	52	39	73	32	45	2	1.12	0.12	0.56	1.92	53	46.16	92	98	70	0	1	6	1
	AUGUSTA	57	41	78	29	49	3	0.96	0.15	0.50	1.44	52	47.72	108	96	57	0	1	6	1
	COLUMBUS	56	44	75	33	50	3	0.25	-0.91	0.09	1.48	36	33.07	86	89	49	0	0	5	0
	MACON	56	41	77	30	48	1	1.00	-0.03	0.48	1.73	49	43.54	99	97	67	0	1	6	0
	SAVANNAH	59	45	77	35	52	2	1.64	0.93	1.09	2.35	97	49.51	102	99	71	0	0	5	1
HI	HILO	75	63	78	60	69	-3	2.43	-0.12	1.22	10.16	99	108.46	85	99	77	0	0	7	1
	HONOLULU	81	69	83	64	75	1	0.15	-0.73	0.11	0.52	16	4.15	19	85	55	0	0	2	0
	KAHULUI	80	63	82	58	72	-1	0.06	-0.72	0.06	0.40	15	5.99	29	88	55	0	0	1	0
	LIHUE	77	70	78	68	74	1	0.29	-0.90	0.24	1.76	41	25.94	62	88	70	0	0	3	0
ID	BOISE	24	10	41	-2	17	-12	0.71	0.41	0.63	1.21	107	16.27	137	83	50	0	7	3	1
	LEWISTON	28	16	51	2	22	-11	0.03	-0.25	0.03	0.36	35	17.13	139	74	43	0	5	1	0
	POCATELLO	16	-1	37	-15	7	-16	0.06	-0.19	0.04	0.53	58	13.29	111	83	60	0	7	2	0
IL	CHICAGO/O'HARE	29	14	38	5	21	-3	0.11	-0.40	0.01	1.21	57	37.55	106	80	46	0	7	3	0
	MOLINE	27	11	33	3	19	-4	0.04	-0.44	0.01	0.90	47	47.97	124	82	50	0	7	2	0
	PEORIA	28	13	34	5	20	-4	0.08	-0.44	0.05	1.65	79	42.36	118	85	52	0	7	2	0
	ROCKFORD	26	10	33	2	18	-4	0.03	-0.40	0.00	0.87	49	39.90	111	84	47	0	7	1	0
	SPRINGFIELD	28	14	35	6	21	-6	0.11	-0.48	0.08	0.63	27	44.91	129	85	56	0	7	2	0
IN	EVANSVILLE	40	20	62	12	30	-4	2.19	1.39	2.16	3.00	96	43.20	101	88	55	0	6	2	1
	FORT WAYNE	30	15	42	7	23	-3	0.41	-0.22	0.41	1.00	40	38.32	112	87	55	0	7	1	0
	INDIANAPOLIS	32	16	47	7	24	-4	0.68	-0.05	0.68	1.14	40	49.51	126	86	57	0	6	1	1
	SOUTH BEND	28	14	36	5	21	-6	0.28	-0.44	0.14	2.01	71	35.23	91	86	58	0	7	4	0
IA	BURLINGTON	29	13	36	6	21	-3	0.01	-0.41	0.01	1.39	81	52.20	146	76	47	0	7	1	0
	CEDAR RAPIDS	24	6	33	-1	15	-6	0.00	-0.33	0.00	0.02	1	45.26	135	81	47	0	7	0	0
	DES MOINES	23	7	33	-1	15	-7	0.05	-0.23	0.00	0.12	11	39.66	121	82	48	0	7	2	0
	DUBUQUE	23	8	30	-1	15	-4	0.02	-0.38	0.02	0.14	8	43.33	114	83	51	0	7	1	0
	SIOUX CITY	22	1	41	-7	12	-8	0.09	-0.08	0.00	0.12	18	31.04	121	82	44	0	7	2	0
	WATERLOO	21	6	31	-2	14	-4	0.07	-0.19	0.01	0.12	11	44.66	133	79	49	0	7	3	0
KS	CONCORDIA	28	6	53	-6	17	-11	0.06	-0.11	0.02	0.16	22	33.23	116	85	45	0	7	2	0
	DODGE CITY	25	3	55	-7	14	-16	0.10	-0.04	0.10	0.28	50	21.76	102	88	55	0	7	1	0
	GOODLAND	21	-1	50	-13	10	-18	0.05	-0.03	0.02	0.06	17	18.27	101	82	57	0	7	2	0
	TOPEKA	29	10	48	1	20	-9	0.05	-0.25	0.01	1.24	101	42.19	120	83	47	0	7	2	0

Based on 1961-90 normals

Weather Data for the Week Ending December 26, 1998

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP, °F		PRECIP.	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL IN. SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	WICHITA	27	11	46	0	19	-12	0.05	-0.20	0.03	1.10	106	34.71	119	84	52	0	7	1	0
KY	JACKSON	41	26	68	14	34	-2	0.89	-0.09	0.35	4.60	124	52.83	108	92	49	0	5	3	0
	LEXINGTON	39	22	65	12	31	-3	0.73	-0.16	0.61	3.03	89	49.44	112	88	48	0	5	3	1
	LOUISVILLE	40	23	65	15	32	-3	1.31	0.52	1.29	2.65	85	47.50	108	86	51	0	6	2	1
	PADUCAH	39	20	61	11	30	-6	0.93	-0.09	0.87	2.73	68	54.99	113	93	59	0	6	3	1
LA	BATON ROUGE	57	42	78	33	49	-2	0.78	-0.49	0.35	1.89	41	54.81	91	98	70	0	0	4	0
	LAKE CHARLES	56	41	78	30	48	-4	0.36	-0.80	0.17	2.49	59	55.46	103	97	69	0	2	3	0
	NEW ORLEANS	59	47	79	39	53	0	0.70	-0.61	0.39	1.64	34	78.42	129	97	72	0	0	3	0
	SHREVEPORT	45	30	74	22	38	-9	1.27	0.36	0.72	6.19	179	50.57	111	96	69	0	5	5	1
ME	CARIBOU	25	5	43	-2	15	3	0.24	-0.46	0.13	1.24	45	35.49	98	87	54	0	7	2	0
	PORTLAND	35	17	54	11	26	2	0.39	-0.58	0.31	1.10	28	54.56	125	78	39	0	7	2	0
MD	BALTIMORE	42	25	64	9	33	-1	0.37	-0.39	0.24	1.27	44	34.39	85	87	45	0	6	3	0
MA	BOSTON	40	26	59	17	33	2	0.24	-0.64	0.21	0.92	27	52.77	129	86	47	0	5	3	0
	WORCESTER	37	21	56	13	29	4	0.32	-0.57	0.31	1.09	32	46.21	98	75	45	0	6	1	0
MI	ALPENA	25	10	31	3	17	-4	0.20	-0.24	0.09	1.30	76	32.95	116	88	59	0	7	5	0
	GRAND RAPIDS	26	15	34	7	21	-4	0.13	-0.47	0.07	1.07	44	32.12	90	86	59	0	7	3	0
	HOUGHTON LAKE	24	9	30	3	17	-4	0.13	-0.29	0.04	1.08	65	24.43	87	89	64	0	7	5	0
	LANSING	27	12	35	2	19	-5	0.27	-0.22	0.19	1.28	64	28.65	95	88	57	0	7	3	0
	MARQUETTE	13	0	19	-7	7	-8	0.14	-0.44	0.09	1.23	56	27.97	80	82	53	0	7	2	0
	MUSKEGON	29	18	36	8	24	-3	0.09	-0.58	0.04	1.29	50	28.28	88	74	55	0	7	2	0
MN	DULUTH	9	-7	15	-18	1	-9	0.05	-0.23	0.01	0.79	75	32.89	110	82	56	0	7	2	0
	INT'L FALLS	2	-18	7	-24	-8	-12	0.08	-0.11	0.01	0.36	50	22.54	93	81	61	0	7	3	0
	MINNEAPOLIS	15	0	22	-7	8	-8	0.09	-0.13	0.02	0.40	43	33.04	117	78	53	0	7	2	0
	ROCHESTER	21	-5	35	-14	8	-7	0.03	-0.18	0.02	0.07	8	31.97	108	80	51	0	7	2	0
	ST. CLOUD	12	-5	20	-14	3	-8	0.14	-0.03	0.06	0.98	135	24.98	91	82	57	0	7	3	0
MS	JACKSON	52	36	76	28	45	-1	1.52	0.17	0.83	5.49	111	50.81	93	96	69	0	5	3	1
	MERIDIAN	51	37	74	27	44	-3	1.32	-0.07	0.72	3.25	64	53.54	96	97	76	0	5	4	1
	TUPELO	43	31	73	21	37	-5	1.69	0.30	1.09	8.99	134	50.37	92	97	75	0	5	4	1
MO	COLUMBIA	28	13	38	3	20	-9	0.06	-0.45	0.03	1.17	55	44.93	116	89	59	0	7	2	0
	KANSAS CITY	27	10	41	0	18	-10	0.06	-0.28	0.00	0.89	66	49.21	132	87	55	0	7	1	0
	SAINT LOUIS	31	17	38	7	24	-8	0.22	-0.42	0.12	0.75	29	43.54	117	85	54	0	7	2	0
	SPRINGFIELD	32	14	45	4	23	-10	0.09	-0.57	0.07	1.41	51	48.52	114	92	60	0	7	2	0
MT	BILLINGS	18	1	47	-14	10	-14	0.00	-0.19	0.00	0.56	88	14.25	95	86	50	0	7	0	0
	BUTTE	11	-11	36	-39	0	-16	0.04	-0.07	0.01	1.25	321	15.35	127	79	56	0	7	3	0
	GLASGOW	8	-8	19	-16	0	-13	0.11	0.03	0.06	0.39	126	14.62	135	84	58	0	7	4	0
	GREAT FALLS	16	-5	39	-26	6	-16	0.11	-0.08	0.11	0.22	32	16.64	111	84	55	0	7	1	0
	KALISPELL	15	2	37	-14	8	-13	1.16	0.75	0.41	1.65	115	20.69	128	84	55	0	7	5	0
	MILES CITY	18	-7	41	-16	6	-12	0.15	0.01	0.12	0.25	49	13.69	98	87	54	0	7	3	0
	MISSOULA	15	0	37	-24	8	-14	0.41	0.13	0.21	1.26	131	21.78	164	83	61	0	7	5	0
NE	GRAND ISLAND	23	0	47	-14	11	-12	0.05	-0.09	0.01	0.06	10	25.96	105	80	52	0	7	1	0
	LINCOLN	25	3	45	-8	14	-9	0.11	-0.07	0.07	0.14	18	34.17	121	84	42	0	7	2	0
	NORFOLK	22	1	44	-9	12	-9	0.04	-0.12	0.02	0.06	9	35.09	140	81	49	0	7	1	0
	NORTH PLATTE	23	-6	52	-21	8	-14	0.05	-0.05	0.00	0.08	15	22.49	117	86	48	0	7	1	0
	OMAHA	24	5	41	-3	15	-8	0.08	-0.13	0.04	0.10	11	39.60	133	78	42	0	7	3	0
	SCOTTSBLUFF	16	-11	45	-27	3	-22	0.18	0.06	0.14	1.20	240	17.59	116	83	57	0	7	2	0
	VALENTINE	23	-7	52	-20	8	-12	0.06	-0.02	0.01	0.06	18	24.14	133	86	50	0	7	1	0
NV	ELY	28	-4	47	-19	12	-12	0.02	-0.15	0.02	0.40	66	12.31	122	82	40	0	7	1	0
	LAS VEGAS	49	29	56	20	39	-6	0.00	-0.08	0.00	0.04	13	6.96	173	43	16	0	5	0	0
	RENO	29	8	52	-3	18	-13	0.00	-0.22	0.00	0.10	12	12.08	165	88	50	0	7	0	0
	WINNEMUCCA	26	2	49	-14	14	-15	0.03	-0.16	0.00	0.22	29	15.35	189	83	49	0	7	1	0
NH	CONCORD	34	14	51	6	24	2	0.31	-0.37	0.27	0.78	29	35.41	98	88	42	0	7	2	0
NJ	NEWARK	42	28	65	19	35	1	0.18	-0.58	0.09	0.44	15	42.87	99	75	41	0	5	3	0
NM	ALBUQUERQUE	45	23	61	16	34	0	0.00	-0.11	0.00	0.23	56	9.85	113	59	23	0	6	0	0
NY	ALBANY	37	19	52	12	28	4	0.37	-0.26	0.21	0.87	35	38.80	108	93	61	0	7	2	0
	BINGHAMTON	34	17	51	5	26	1	0.99	0.34	0.53	1.54	60	39.05	107	86	53	0	6	3	1
	BUFFALO	31	19	49	9	25	-2	1.03	0.23	0.62	1.41	45	34.69	91	93	59	0	6	5	1
	ROCHESTER	33	18	53	8	26	-1	0.49	-0.10	0.26	1.34	58	41.70	132	90	56	0	6	6	0
	SYRACUSE	37	19	53	9	28	2	0.74	0.06	0.39	1.57	57	37.03	96	85	50	0	5	3	0
NC	ASHEVILLE	47	33	65	27	40	2	1.10	0.32	0.52	3.21	108	47.97	102	99	71	0	5	6	1
	CHARLOTTE	49	35	70	25	42	1	1.92	1.12	1.27	3.13	108	40.91	96	95	60	0	3	4	1
	GREENSBORO	45	32	65	23	38	0	1.29	0.52	0.77	5.35	190	48.31	115	98	68	0	5	4	2
	HATTERAS	54	44	65	38	49	2	1.84	0.80	0.75	4.39	116	62.42	113	98	69	0	0	5	2
	RALEIGH	47	34	67	24	40	-1	1.57	0.83	0.99	3.47	129	52.85	129	99	68	0	4	3	2
	WILMINGTON	54	40	78	29	47	0	1.95	1.11	1.26	3.72	123	63.37	118	94	71	0	1	3	1
ND	BISMARCK	14	-8	32	-10	4	-8	0.06	-0.05	0.04	0.19	46	23.67	154	78	59	0	7	2	0
	DICKINSON	14	-7	36	-15	3	-12	0.09	0.01	0.02	0.10	32	24.72	154	84	61	0	7	4	0
	FARGO	10	-6	19	-13	2	-7	0.07	-0.08	0.00	0.08	15	31.81	163	79	60	0	7	3	0
	GRAND FORKS	6	-8	12	-12	-1	-8	0.13	-0.02	0.09	0.31	60	23.86	131	80	63	0	7	2	0
	JAMESTOWN	10	-5	21	-9	3	-8	0.11	0.00	0.03	0.18	44	21.83	130	81	62	0	7	3	0
	WILLISTON	8	-11	19	-18	-2	-13	0.13	-0.01	0.06	0.40	82	17.49	129	82	60	0	7	4	0
OH	AKRON-CANTON	33	17	55	7	26	-3	1.49	0.85	1.37	2.08	82	40.19	111	90	65	0	5	3	1
	CINCINNATI	37	19	60	8	28	-3	2.49	1.81	2.47	3.59	133	51.14	125	89	58	0	6	2	1
	CLEVELAND	33	19	52	7	26	-2	0.99	0.32	0.93	1.87	71	32.77	91	85	58	0	6	3	1
	COLUMBUS	36	21	59	11	29	-1	2.57	1.96	2.56	3.20	131	37.51	99	86	60	0	5	2	1
	DAYTON	34	18	56	9	26	-3	1.59	0.98	1.55	2.00	80	39.10	108	85	56	0	6	2	1
	MANSFIELD	32	16	54	5	24	-4	0.79	0.15	0.66	1.12	42	37.05	94	90	63	0	6	3	1

Based on 1961-90 normals

Weather Data for the Week Ending December 26, 1998

STATES AND STATIONS		TEMPERATURE °F						PRECIPITATION							RELATIVE HUMIDITY, PERCENT		NUMBER OF DAYS			
																	TEMP, °F		PRECIP.	
		AVERAGE MAXIMUM	AVERAGE MINIMUM	EXTREME HIGH	EXTREME LOW	AVERAGE	DEPARTURE FROM NORMAL	WEEKLY TOTAL, IN.	DEPARTURE FROM NORMAL	GREATEST IN 24-HOUR, IN.	TOTAL, IN., SINCE Dec 1	PCT. NORMAL SINCE Dec 1	TOTAL, IN., SINCE Jan 1	PCT. NORMAL SINCE Jan 1	AVERAGE MAXIMUM	AVERAGE MINIMUM	90 AND ABOVE	32 AND BELOW	.01 INCH OR MORE	.50 INCH OR MORE
	TOLEDO	31	16	44	8	24	-2	0.46	-0.17	0.43	0.60	24	32.53	100	83	54	0	7	3	0
	YOUNGSTOWN	33	19	54	8	26	-1	1.32	0.69	1.19	1.99	79	37.20	101	87	58	0	5	3	1
OK	OKLAHOMA CITY	34	18	50	10	26	-12	0.01	-0.29	0.00	1.65	138	35.36	107	88	50	0	7	1	0
	TULSA	33	18	47	9	26	-11	0.12	-0.32	0.06	1.76	94	46.72	116	86	54	0	7	2	0
OR	ASTORIA	38	27	52	16	33	-9	3.17	0.80	1.61	12.19	137	84.79	131	89	57	0	5	6	2
	BURNS	22	3	41	-13	12	-12	0.16	-0.09	0.16	0.89	91	16.06	164	86	51	0	7	1	0
	EUGENE	36	22	51	10	29	-12	0.41	-1.51	0.31	4.43	61	46.30	96	87	59	0	5	3	0
	MEDFORD	31	16	46	6	24	-14	0.16	-0.57	0.08	1.11	40	28.60	156	92	54	0	6	3	0
	PENDLETON	30	14	53	2	22	-11	0.18	-0.18	0.12	0.94	69	14.00	118	83	50	0	6	2	0
	PORTLAND	36	24	53	11	30	-10	0.59	-0.79	0.38	3.91	76	43.24	122	84	49	0	5	3	0
	SALEM	35	23	52	12	29	-10	0.71	-0.81	0.53	4.72	82	46.99	123	84	51	0	5	3	1
PA	ALLENTOWN	40	23	61	14	31	2	0.06	-0.70	0.05	0.43	15	39.50	92	87	50	0	5	2	0
	ERIE	34	23	54	13	28	-1	0.98	0.22	0.84	2.25	73	32.29	79	86	53	0	5	5	1
	MIDDLETOWN	43	25	63	15	34	2	0.06	-0.65	0.04	0.24	9	45.88	115	79	46	0	5	2	0
	PHILADELPHIA	42	28	64	20	35	1	0.19	-0.57	0.11	0.67	24	31.52	77	84	48	0	5	3	0
	PITTSBURGH	37	20	60	9	28	-1	1.34	0.69	1.10	1.77	72	34.17	94	82	51	0	5	3	1
	WILKES-BARRE	38	21	57	9	30	2	0.42	-0.12	0.21	0.72	33	34.61	97	83	46	0	5	3	0
	WILLIAMSPORT	38	22	56	11	30	1	0.55	-0.10	0.28	0.86	33	40.10	99	88	48	0	5	3	0
RI	PROVIDENCE	40	24	59	14	32	1	0.24	-0.73	0.16	0.54	15	51.87	116	83	48	0	5	3	0
SC	BEAUFORT	59	45	78	35	52	1	1.80	1.04	1.21	2.34	89	49.85	98	97	70	0	0	4	1
	CHARLESTON	58	44	78	31	51	1	2.33	1.59	1.56	4.29	165	67.80	133	97	69	0	1	3	2
	COLUMBIA	55	40	75	27	47	2	1.02	0.16	0.58	2.47	84	46.66	95	96	59	0	1	6	1
	GREENVILLE	50	37	67	30	43	2	1.82	0.86	1.27	4.04	117	51.79	102	98	65	0	4	6	1
SD	ABERDEEN	18	-4	32	-9	7	-6	0.07	-0.01	0.00	0.24	71	28.57	155	81	54	0	7	3	0
	HURON	22	-2	37	-8	10	-6	0.00	-0.11	0.00	0.05	12	25.03	125	81	54	0	7	0	0
	RAPID CITY	21	-6	49	-22	8	-15	0.07	-0.04	0.00	0.13	32	21.17	128	84	49	0	7	2	0
	SIOUX FALLS	17	-3	32	-11	7	-9	0.08	-0.06	0.04	0.14	23	31.04	131	82	59	0	7	2	0
TN	BRISTOL	46	27	64	19	37	0	1.24	0.47	0.50	5.14	181	43.75	109	98	66	0	5	4	1
	CHATTANOOGA	48	35	66	28	42	2	2.25	1.08	1.14	5.92	136	53.69	102	95	68	0	5	4	2
	KNOXVILLE	46	32	67	23	39	0	1.14	0.09	0.52	5.17	135	53.13	115	98	72	0	5	3	1
	MEMPHIS	43	27	69	20	35	-7	0.47	-0.78	0.24	3.95	80	52.56	102	95	59	0	6	4	0
	NASHVILLE	42	27	69	19	35	-4	0.57	-0.45	0.37	6.41	164	50.61	109	95	59	0	5	3	0
TX	ABILENE	43	21	65	13	32	-12	0.00	-0.22	0.00	1.39	160	13.89	57	92	57	0	6	0	0
	AMARILLO	35	9	60	0	22	-13	0.08	0.00	0.02	0.51	146	17.26	89	90	53	0	7	2	0
	AUSTIN	48	31	77	25	40	-11	0.09	-0.32	0.07	1.58	98	39.12	124	94	61	0	6	2	0
	BEAUMONT	54	40	78	28	47	-6	0.13	-0.95	0.01	2.46	82	57.43	102	97	69	0	1	5	0
	BROWNSVILLE	61	45	83	34	53	-8	0.11	-0.18	0.08	0.48	46	20.13	78	98	73	0	0	3	0
	CORPUS CHRISTI	57	42	79	31	50	-7	0.36	0.07	0.34	0.78	75	30.69	103	97	77	0	2	3	0
	DEL RIO	62	34	88	25	43	-8	0.01	-0.13	0.01	0.39	75	29.20	161	90	47	0	5	1	0
	EL PASO	55	29	67	21	42	-1	0.00	-0.14	0.00	0.37	74	6.80	77	70	32	0	5	0	0
	FORT WORTH	41	25	55	19	33	-12	0.12	-0.29	0.01	4.62	298	34.43	103	94	65	0	6	2	0
	GALVESTON	54	45	74	34	49	-5	0.10	-0.70	0.05	3.34	112	51.36	123	97	77	0	0	4	0
	HOUSTON	53	37	78	27	45	-7	0.05	-0.72	0.04	4.01	138	54.79	120	93	68	0	2	2	0
	LUBBOCK	43	16	67	7	30	-10	0.03	-0.08	0.00	0.30	65	13.11	71	83	42	0	7	1	0
	MIDLAND	49	22	68	13	35	-8	0.02	-0.10	0.01	0.62	127	5.19	36	87	36	0	6	2	0
	SAN ANGELO	49	24	72	18	36	-8	0.01	-0.16	0.01	0.49	74	13.00	64	93	50	0	6	1	0
	SAN ANTONIO	49	31	77	23	40	-11	0.10	-0.20	0.01	0.50	39	42.22	137	91	60	0	5	2	0
	VICTORIA	51	35	76	27	43	-11	0.21	-0.26	0.11	3.83	211	46.40	125	98	76	0	4	4	0
	WACO	43	29	67	23	36	-11	0.04	-0.35	0.01	4.12	261	35.12	111	97	71	0	6	3	0
	WICHITA FALLS	38	20	58	13	29	-12	0.35	0.07	0.02	2.32	213	23.42	82	89	47	0	6	3	0
UT	SALT LAKE CITY	24	8	38	1	17	-11	0.00	-0.31	0.00	0.97	81	23.50	148	83	49	0	7	0	0
VT	BURLINGTON	36	18	51	6	27	7	0.08	-0.43	0.02	0.52	25	50.57	148	74	45	0	7	3	0
VA	LYNCHBURG	43	26	62	19	35	-2	0.75	0.03	0.49	3.16	115	47.52	118	98	63	0	5	3	0
	NORFOLK	49	37	69	30	43	1	1.34	0.58	0.79	4.70	176	54.12	123	97	68	0	4	3	2
	RICHMOND	45	28	66	20	37	-2	1.73	0.99	1.20	5.36	196	47.12	111	95	59	0	5	3	1
	ROANOKE	46	28	62	17	37	0	0.43	-0.23	0.35	2.18	87	44.89	110	91	52	0	5	2	0
	WASH/DULLES	44	24	65	10	34	0	0.25	-0.46	0.19	1.44	53	37.34	94	90	45	0	5	3	0
WA	HANFORD	24	13	48	-1	19	–	0.08	–	0.06	0.27	–	6.28	–	71	46	0	6	1	0
	OLYMPIA	33	18	49	-1	26	-12	1.90	0.17	1.27	8.48	125	53.83	109	97	66	0	5	5	1
	QUILLAYUTE	38	27	48	12	32	-7	2.99	-0.48	1.25	19.56	150	102.50	100	89	86	0	4	6	2
	SEATTLE-TACOMA	34	25	48	15	30	-10	1.61	0.29	1.01	6.27	126	41.29	114	91	52	0	5	5	1
	SPOKANE	21	9	37	-4	15	-12	0.72	0.18	0.52	2.74	134	17.21	107	80	57	0	7	2	1
	YAKIMA	23	7	48	-3	16	-13	0.08	-0.25	0.04	0.53	45	8.54	110	87	48	0	7	3	0
WV	BECKLEY	41	20	63	5	31	-1	0.61	-0.12	0.43	3.94	144	48.22	119	100	65	0	5	3	0
	CHARLESTON	48	23	68	9	36	-1	0.61	-0.13	0.52	2.83	99	48.01	114	93	48	0	5	3	1
	ELKINS	41	15	65	2	28	-2	0.34	-0.44	0.31	1.56	53	45.66	103	94	49	0	6	2	0
	HUNTINGTON	42	23	68	12	32	-3	0.48	-0.26	0.24	2.87	101	43.82	107	93	46	0	5	4	0
WI	EAU CLAIRE	15	0	24	-8	8	-6	0.19	-0.05	0.09	0.30	32	29.25	93	87	57	0	7	3	0
	GREEN BAY	22	6	30	-4	14	-4	0.13	-0.18	0.09	0.19	14	28.66	100	78	54	0	7	2	0
	MADISON	25	12	31	1	18	-1	0.04	-0.35	0.04	0.26	16	39.91	130	75	45	0	7	1	0
	MILWAUKEE	26	12	34	2	19	-3	0.04	-0.48	0.04	0.81	41	34.56	106	77	45	0	7	1	0
WY	CASPER	14	-8	39	-25	3	-19	0.06	-0.08	0.00	0.26	46	14.67	118	76	53	0	7	3	0
	CHEYENNE	16	-1	39	-14	8	-19	0.13	0.05	0.13	0.46	131	10.82	76	80	56	0	7	1	0
	LANDER	13	-9	42	-27	2	-17	0.00	-0.11	0.00	0.24	49	17.30	134	78	52	0	7	0	0
	SHERIDAN	20	-6	46	-26	7	-14	0.00	-0.17	0.00	0.12	20	17.36	120	83	50	0	7	0	0

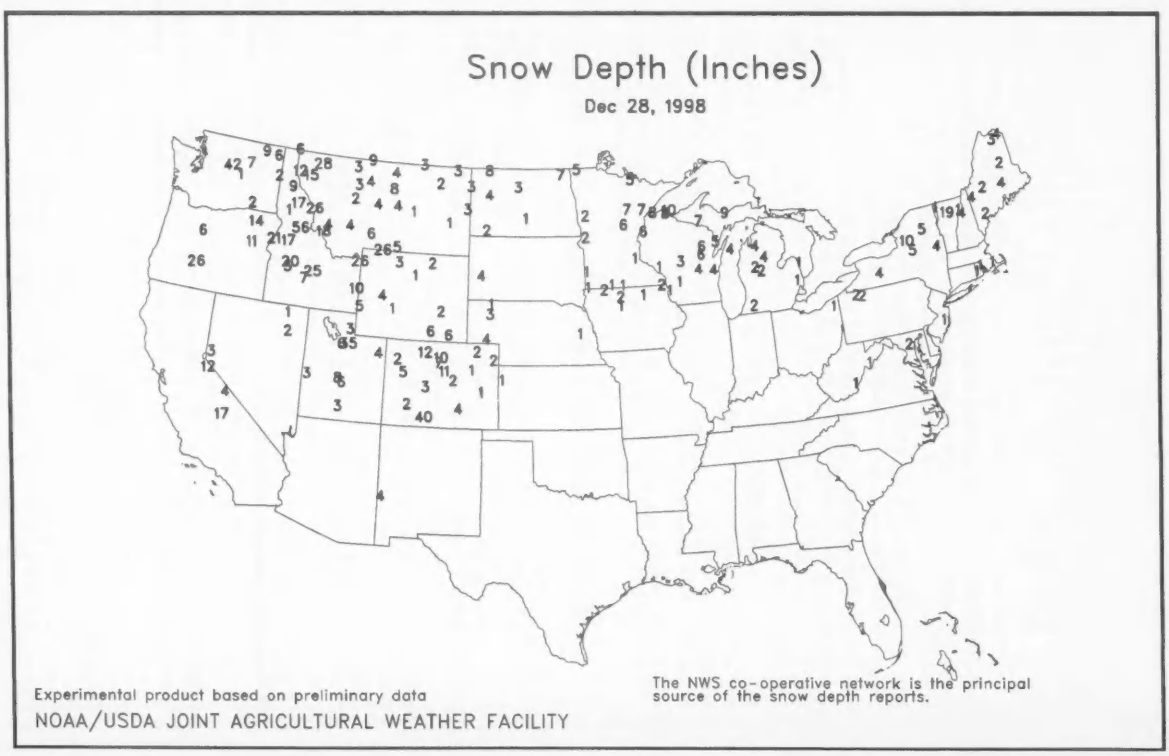
NOTE: These data are preliminary and subject to change. In the past, precipitation totals from a number of stations have been incomplete.

National Agricultural Summary

December 21 - 27, 1998

HIGHLIGHTS

The coldest air of the year pushed southward out of western Canada into the western and central United States. Winter wheat fields in the Northwest and eastern Montana had little or no snow cover to protect plants from the bitterly cold and windy weather. Several nights of sub-freezing temperatures damaged citrus crops in the Sacramento and San Joaquin Valleys, but southern California citrus escaped major damage. The lemon crop was especially hard hit. Freeze damage to California's vegetable crops was not as severe, but the full extent of losses was still unknown. The cold weather also halted winter vegetable harvest activities. A stormy pattern resumed along the Pacific Northwest coast. Snow early in the week, followed by late-week mild and rainy weather, raised streams to their banks in some areas. The Great Plains and the Corn Belt remained dry. In Texas, mild temperatures aided winter wheat growth, and most fields were providing good forage for grazing. Dry conditions continued to assist harvest efforts as cotton, sorghum, peanuts, and soybeans were virtually complete. Precipitation in the Southeast provided beneficial moisture for winter crops, but freezing rain downed power lines from the central Mississippi Delta to the middle Atlantic States. In Florida, rains eased dryness in the Panhandle, but the remainder of the State remained dry. Vegetable and citrus growers increased irrigation and harvesting continued until late week when many took a break to observe the holiday. Most citrus groves were in good condition, but some were stressed by excessive dryness.


Snow Depth (Inches)
Dec 28, 1998
Experimental product based on preliminary data
NOAA/USDA JOINT AGRICULTURAL WEATHER FACILITY
The NWS co-operative network is the principal source of the snow depth reports.

International Weather and Crop Summary

December 20 - 26, 1998

HIGHLIGHTS

FSU-WESTERN: Cold weather returned to the region, but most winter wheat areas had an adequate layer of protective snow cover.

EUROPE: Stormy weather hit the northwest while bitterly cold air enveloped the east.

NORTHWESTERN AFRICA: Unfavorably dry topsoils hampered winter grain emergence and establishment in Morocco.

AUSTRALIA: Locally heavy rain in Queensland's cotton and sorghum areas kept soils unseasonably wet.

SOUTH AFRICA: Warmer, drier weather favored growth of corn and other summer crops.

SOUTHEAST ASIA: Drier weather aids rice harvesting in the Philippines and Indochina.

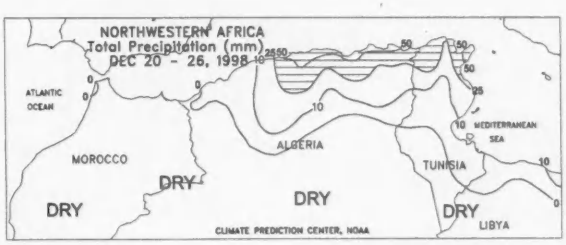
EASTERN ASIA: Winter wheat remained dormant despite mild weather.

SOUTH AMERICA: Showers continued to benefit summer crops across the region, but more rain is still needed in Argentina's Buenos Aires province.

CENTRAL AMERICA: Dry weather continued to aid flood recovery efforts in Honduras.

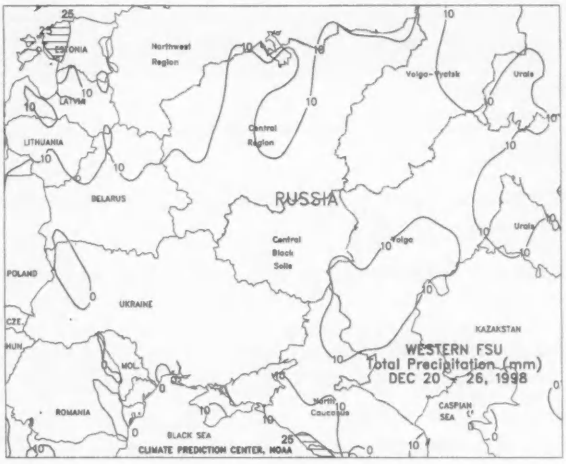
EUROPE

Moderate to heavy rain (10-25 mm or more, locally exceeding 50 mm) pushed slowly across northwestern Europe. Heaviest amounts were reported in England and France. Lighter amounts of precipitation (5-30 mm) were recorded across the Benelux Countries and northern Germany. However, moisture failed to reach parched winter grain areas of Spain, which need moisture for crop germination and establishment. Elsewhere, light to moderate showers (10-25 mm or more) swept across southern Europe from Italy through the Balkans to Greece. Cold weather returned to the east, with bitter cold (-20 degrees C or lower) concentrated over Romania. However, winter grains were protected by a moderate to deep snow cover.



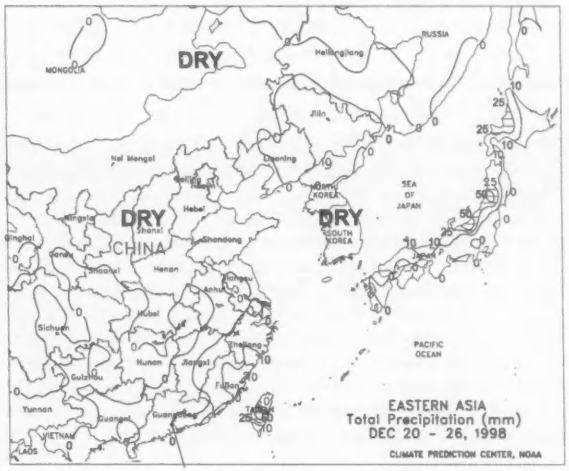
NORTHWESTERN AFRICA

Dry weather continued across Morocco, hampering winter grain emergence and early establishment. During the past 4 weeks, rainfall has averaged less than 33 percent of normal across the winter grain areas of Morocco. Timely rains will be needed during the remainder of the growing season to prevent serious declines in yield prospects. Farther east, widespread rain maintained adequate topsoil moisture for winter grain planting from the coast of central Algeria to northern Tunisia. Temperatures averaged near normal across Morocco and slightly below normal across northeastern Algeria and portions of northern Tunisia.



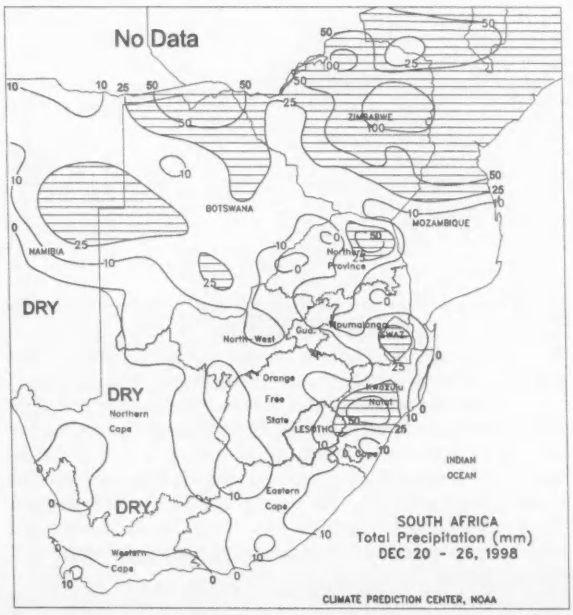
FSU-WESTERN

Arctic air returned to winter wheat areas of the former Soviet Union. Temperatures fell below -20 degrees C in central sections of Ukraine, but winter wheat was insulated by a layer of protective snow cover. Winter wheat areas in Russia also received adequate protection from the cold. Generally light snow (10 mm liquid equivalent or less, most areas) in Russia and Ukraine prior to the cold snap helped to protect crops. In the Baltics, mild, showery weather from a late-week storm moved slowly through Estonia, Latvia, and Lithuania. While increasing moisture reserves for future winter grain development, the rainfall eroded the protective layer of snow.



EASTERN ASIA

Across the North China Plain, winter wheat remained dormant despite temperatures averaging 3 to 5 degrees C above normal. Throughout China, only extreme southeastern areas (Fujian and Zhejiang) received any significant precipitation (5-15 mm).

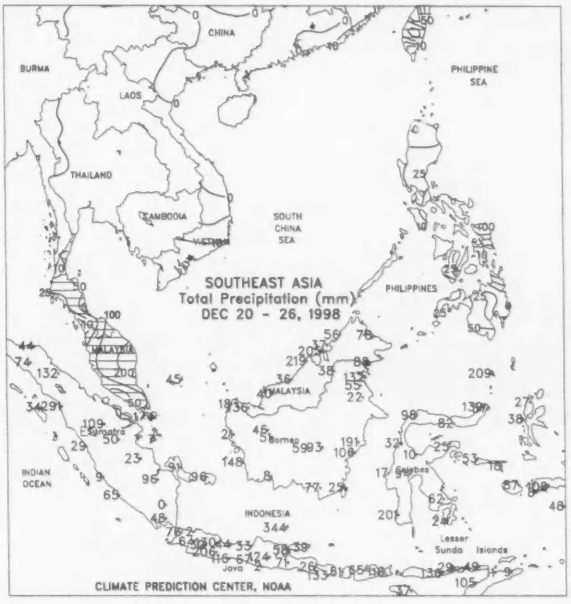


SOUTH AFRICA

Drier weather returned to the corn belt, with just a few locations reporting rainfall in excess of 25 mm. Rain continued to be light (15mm or less) along coastal sugarcane areas of KwaZulu-Natal, but moderate showers (25-50 mm or more) farther inland reached irrigated sugarcane areas surrounding Swaziland. High temperatures throughout the main summer crop areas ranged from 29 to 33 degrees C. In Western Cape, dry, seasonably warm weather brought some relief to excessively wet fields.

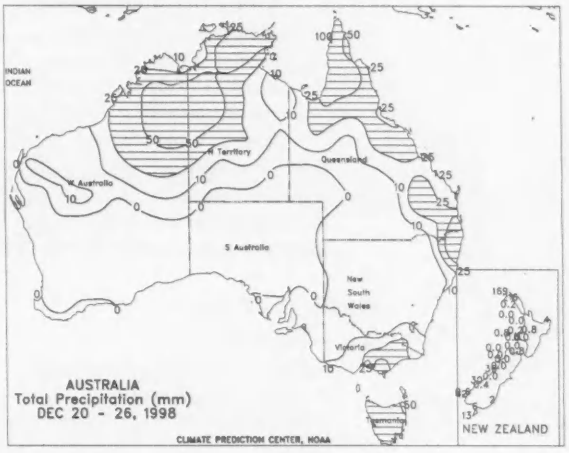
SOUTHEAST ASIA

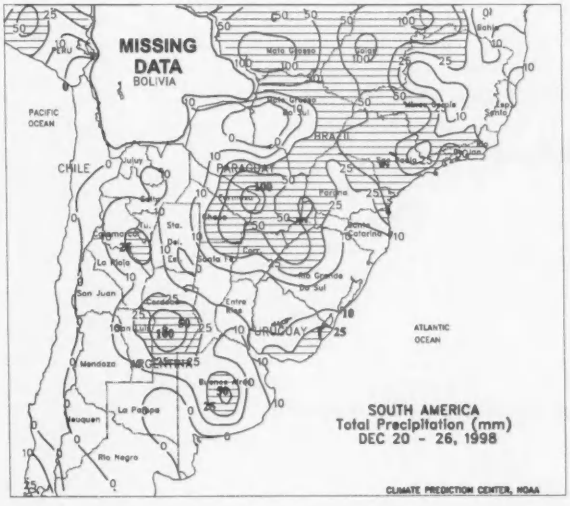
Showers (10-60 mm) lessened across the Philippines, easing wetness, but still providing some moisture for second-crop grains. Seasonably dry weather prevailed across Indochina, aiding late rice harvesting and early second-crop rice transplanting. In Java, widespread showers (50-130 mm) maintained moisture supplies for main-season rice planting. Moderate to heavy showers (60-200 mm) increased moisture supplies for oil palm across peninsular Malaysia, but caused some local flooding.



AUSTRALIA

Locally heavy showers (25-50 mm or more) continued in the northern half of Queensland's cotton and sorghum region. Heavy rain (50-100 mm) was also recorded in coastal sugarcane areas, including crop areas as far south as northern New South Wales. Although summer crops are well watered, sunnier skies are needed for proper growth and development. Farther south, conditions were mostly favorable for wheat and barley harvests, although moderate showers (10-25 mm or more) slowed fieldwork in the eastern growing areas of Victoria. Temperatures averaged near to slightly above normal throughout the east, with highs exceeding 40 degrees C in the western rangeland of southern Queensland. Mostly dry, seasonably warm weather in Western Australia aided winter grain harvesting. In New Zealand, a tropical cyclone brought very heavy rain (100 mm or greater) to the northern tip of North Island (north of Auckland). Seasonably warm, dry weather dominated the main pasture areas.





SOUTH AMERICA

In central Argentina, widespread rain (20-50 mm, with isolated amounts greater than 100 mm) covered southern Cordoba and southern Santa Fe, aiding reproductive corn and vegetative soybeans. Lighter amounts (less than 10 mm) prevailed across Buenos Aires, with only isolated showers (30-50 mm) reported in the central portion of the province. Despite last week's timely rainfall, continued near to above normal rainfall is still needed throughout the province to ensure normal summer crop yields. The mostly dry weather in southern Buenos Aires aided winter wheat maturation and harvesting. According to reports as of December 18, corn was 91 percent planted versus 96 percent last year and sunseed was 98 percent planted. Wheat harvesting was 57 percent complete. In southern Brazil, rain (15-50 mm) continued to benefit soybeans and corn in Rio Grande do Sul and Parana. Elsewhere, widespread showers (20-100 mm) maintained favorable soil moisture for summer crop development. Heavy showers (80-150 mm) possibly caused flooding in southern Mato Grosso. In southern Paraguay, showers (15-60 mm, with isolated amounts greater than 75 mm) eased dryness for soybeans and cotton.

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Extreme Minimum Temperature (°F)

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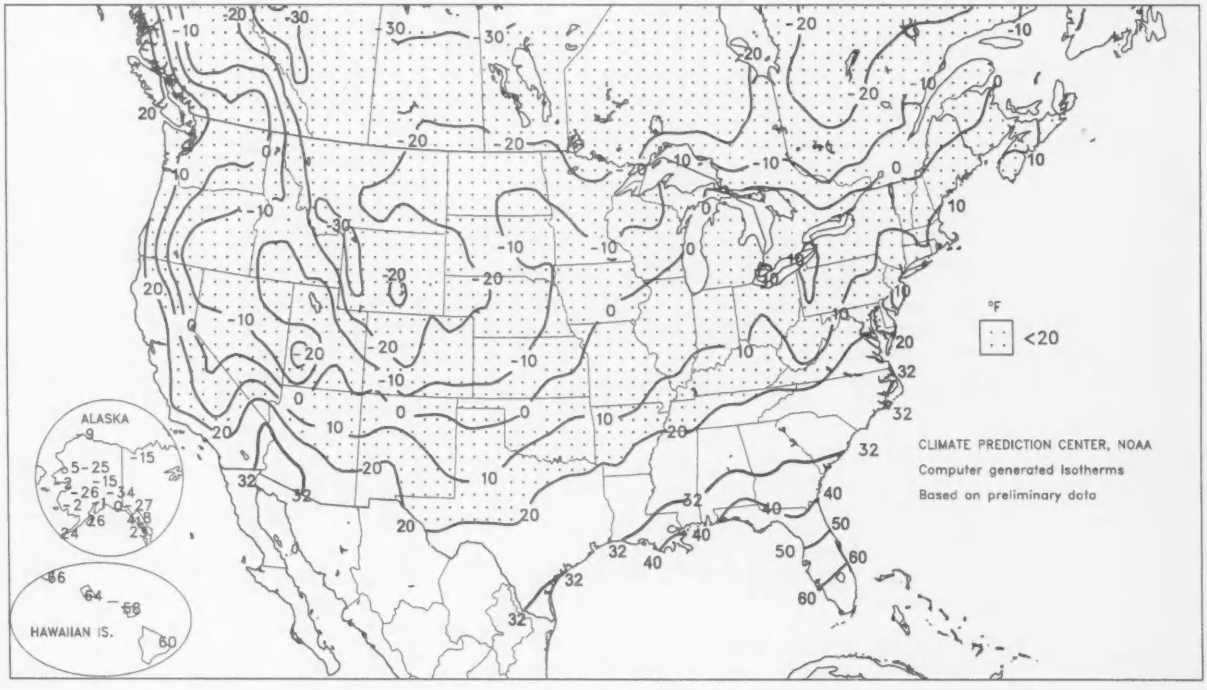

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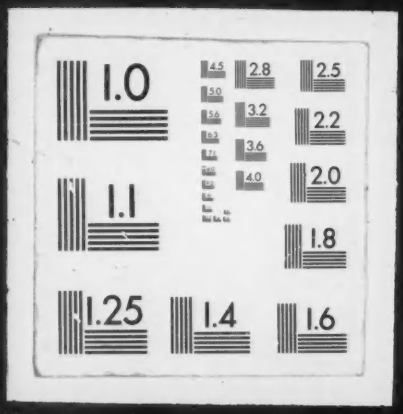
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